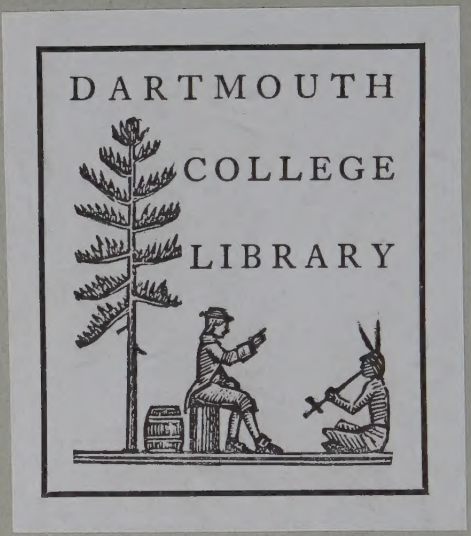

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AN INTRODUCTION

TO THE STUDY OF

PREHISTORIC ART

Wall Painting of Reindeer in the Cave of Font de Gaume. Length, 2.10 metres
(From *La Caverne de Font de Gaume*)

PLATE I.

AN INTRODUCTION

TO THE STUDY OF

PREHISTORIC ART

BY

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WITH 16 PLATES (2 OF WHICH ARE COLOURED) AND 318 ILLUSTRATIONS IN THE TEXT

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PREFACE.

As the adequate presentation of a subject like that dealt with in this work largely depends on the extent to which it is illustrated, an effort has been made to illustrate it as fully and variously as the limitations under which it is published would permit. The sources from which the illustrations have been drawn are acknowledged in the List of Illustrations and the text. I desire, however, here more formally to express my thanks to the Hon. J. Abercromby, M. Boule and the Institut de Paléontologie Humaine, Mr. G. Coffey and the Royal Irish Academy and Royal Society of Antiquaries of Ireland, Dr. R. Munro, Mr. G. Penrose, and M. D. Peyrony: to the Société d'Anthropologie de Paris, the Society of Antiquaries, the Royal Archæological Institute, the Somerset Archæological Society, the Society for the Promotion of Hellenic Studies, and the British Museum. Illustration of the Palæolithic section has been facilitated by M. S. Reinach kindly consenting to my drawing considerably from his *Répertoire de l'Art Quaternaire*, and by M. J. Déchelette's publishers supplying clichés from his invaluable *Manuel d'Archéologie*. My indebtedness to *L'Anthropologie*, in which so much on Palæolithic Art has first appeared, goes without saying.

Throughout I have given references in notes to enable the reader, if he so desire, to find the original and further illustrations, and the student to follow up in the original sources any subject in which he may be interested.

E. A. PARKYN.

1915.

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PREHISTORIC ART.

CHAPTER I.

INTRODUCTION.

Regarding Art as a social phenomenon, the question of its origin and beginnings becomes of surpassing interest. Just as the physiologist, by the study of lowly forms of life, has been led to a better understanding of the functions of the highest organisms, so, it has been urged, the study of the artistic efforts of primitive peoples should elucidate the complexities of civilized art. Inquiry on these lines has been rewarded with a certain measure of success: it is favoured by the greater simplicity of the individual's life, and the less complexity of his social surroundings.

Whether the study of their primitive predecessors in past ages will conduce to the same end only the successful investigation of Prehistoric Art can decide. That the inquiry here is more difficult is undeniable, and it is obviously restricted to Art in its representative forms. Yet at least it may be said that in so far as Art is a social manifestation it must share in the evolution of social life generally. If our civilized life is the result of a gradual development from the simplest beginnings, Art as a phase of that civilized life may well have had its origin, its first expression, in the early stages of man's existence.

Moreover, if works of art reflect the social condition and mental endowments of those who produce them, knowledge of the art of Prehistoric man should throw light on the manner of his life and the nature of his mind. Further, that the study of Prehistoric Art affords one of the best and most reliable means of discovering the distribution and communications of prehistoric peoples can hardly be disputed. Although serious attention has not long been devoted to the subject, interesting and instructive facts have already been revealed in many directions. In the past, owing to want of knowledge and of interest, innumerable prehistoric works of great importance have been overlooked, destroyed, or thrown away. Invaluable evidence has thus been lost. It may not be too much to expect that the spread of knowledge on the subject will lead to a wider appreciation of the importance of these relics of the past, and of their methodical exploration, with the result that better opportunities and facilities will be afforded for determining their archæological and artistic value.

1. *THE PREHISTORIC PERIOD.*

The long lapse of time from man's first appearance on the earth to the earliest historical records is conveniently called the Prehistoric Period. Compared with the historic era it lasted a vastly longer time. Although any exact chronological data are out of the question, yet from the evidence now available, man no doubt existed in Europe during a length of time before history compared with which the longest historical record sinks into insignificance. One of the most interesting discoveries anthropological investigation has revealed regarding man during the Prehistoric Period is the uniformity, all over the world, of the evolution of his tools and weapons so far as the material of which

they are made is concerned. In his most primitive state the material most ready to hand, stone, was used for this purpose. No doubt wood was also employed, but from the nature of the case no evidence of this has come down to us. Later bone, horn, and ivory were added, material more easily worked, shaped, and engraved. Man was then in the Age of Stone : he had no knowledge of metals. Later arrived one of the most momentous events in the evolution of mankind, the discovery of metals. Everywhere when left to his own devices, and not influenced by a more advanced civilization, we find that if attainable, the first metal used was Copper, a metal not unfrequently found in the virgin state, and therefore more likely to attract attention than any other, except perhaps Gold, which may in fact have been noticed quite as early and used for ornament. Further, whenever Copper was thus used it was soon followed by Bronze. The discovery that the addition of Tin to the Copper hardened it, and made it more suitable for the manufacture of cutting implements appears everywhere, at least in the Old World, to have followed on the use of Copper for this purpose. The discovery of Copper and Bronze had an important bearing on Art, for it supplied the materials for artistic development in engraving, casting, and repoussé working. Lastly came the discovery of Iron. The extraction of the harder metal from its ores being revealed and easily accomplished, it necessarily superseded the softer Copper and Bronze for the manufacture of tools and weapons. But it lent itself less readily to the hand of the artist. Hence the earlier known metals were still more generally employed for the expression of artistic taste and skill.

But before the discovery of metals man had learnt to make use of another and very different material which in the hands of the artist rivals if it does not surpass all others. This was clay, which when worked and baked becomes

Pottery. The value of Pottery as an expression of man's intelligence and taste has impressed every one who has dwelt on the masterpieces of Greek art. Beauty of form and of decoration have in this phase of art exceptional opportunity for simultaneous expression. Pottery was made by man whilst in the Stone Age, and we can trace its gradual development and improvement through the succeeding Ages of Bronze and Iron.

2. *THE THREE AGES OF PREHISTORIC TIME.*

This order of evolution from Stone through Copper and Bronze to Iron has suggested a division of the Prehistoric Period, which has been universally adopted into the three Ages of Stone, Bronze, and Iron. Modern Science has indeed but followed the doctrine of Lucretius expressed nearly two thousand years ago.[1] The Stone Age has been further divided into an earlier and a later epoch known respectively as the Older or *Palæolithic*, and the Newer or *Neolithic*. The fundamental distinction between these two divisions is, so far as it refers to the material used for making implements, that in the later or Neolithic Age man had learnt to polish it: in fact it is sometimes spoken of as the Age of Polished Stone. In the earlier or Palæolithic there is no sign of this. The stone, however much it was worked into shape by a process of chipping or flaking, was never afterwards polished.

It is proposed to consider some of the phases of the art of each of these three stages in the evolution of mankind. Artistic skill, taste, and conception found expression in such materials as Stone, Bone, Horn, Ivory, Pottery,

[1] *De rerum natura*, V, 1282-6. "Arms of old were hands, nails, teeth and stones, and boughs broken off from the forests. . . . Afterwards the force of iron and copper was discovered, and the use of copper was known before that of iron" (Munro's translation).

Copper, Gold, Bronze, and Iron, and even at an early period in engraving and painting on the walls of caves.

The three Ages of Stone, Bronze, and Iron of course indicate only stages in the evolution of culture, and are not necessarily synchronous in different regions, even of Europe. As a matter of fact when a Bronze Age of remarkable artistic richness was flourishing in the island of Crete, the inhabitants of Britain were still in the Age of Stone, and long before they had passed out of the Bronze Age, Iron was in general use in the Eastern Mediterranean. Further, it must be remembered that the historical era began much earlier in some places than in others. Consequently one region might still be in the Prehistoric Period when another was producing written records. For this reason the Ages of Bronze and Iron are sometimes distinguished as forming a *Proto-historic* Period. I shall not however adopt this term, preferring to retain the word Prehistoric for the whole pre-history period. This need give rise to no confusion if applied strictly only to those regions on which history had not yet dawned.

Following the classification just explained, we must first direct our attention to the earlier part of the Stone Age, or the Palæolithic Period.

CHAPTER II.

THE PALÆOLITHIC OR OLD STONE AGE.

The Palæolithic period of the Stone Age introduces us to our earliest knowledge of man so far as reliable evidence at present shows. This evidence is drawn from the gravels of river valleys, such as those of Northern France and Southern England, and from Caves and Rock Shelters.

1. *EARLIEST STONE IMPLEMENTS.*[1]

In the gravels of many river valleys, as the Thames, Ouse, Lark, Avon, and Axe in Southern England, and the Somme and Marne in Northern France, have been found implements made by flaking or chipping a stone, generally flint, more or less to a point. The butt end was left untouched, thus forming a handle by which the tool could be effectually grasped in the hand. Such hatchet-like implements have been found so closely associated with the remains of extinct animals like the Mammoth (*Elephas primigenius*) and the Woolly-haired Rhinoceros (*Rhinoceros tichorhinus*) that there can be no doubt as to their contemporaneity. The term *Chellian* is sometimes applied to this type from Chelles, a site in the Marne valley where it is found in large numbers (Fig. 1). Implements showing more elaborate workmanship also occur in these gravels. They are round,

[1] All reference to the much discussed *Eoliths* is omitted as they are enveloped in such a mist of uncertainty.

Fig. 1.—Flint implement (Chellian type). Biddenham, Bedford. (Natural size.)

oval, or triangular in shape with a continuous sharp edge, produced by more delicate flaking. This sharp edge is sometimes curved, indicating more clearly still, if such were necessary, man's hand and man's design (Fig. 2). Implements of this type, thinner, more finely flaked and finished (often almond-shaped) than those from Chelles, are distinguished by French anthropologists as *Acheulian*, from a site at St. Acheul, near Amiens, where they occur in abundance.

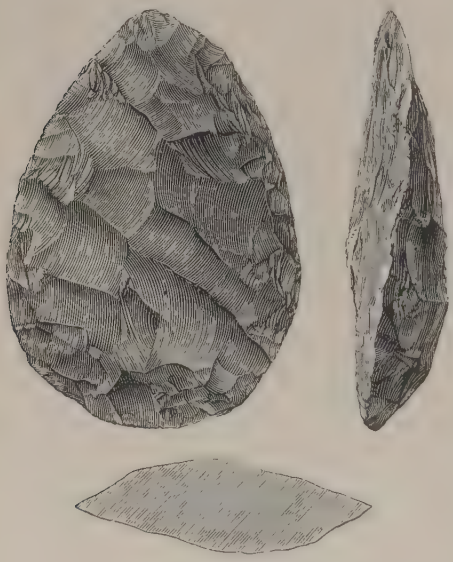


Fig. 2.—Flint implement with curved edge. Grindle Pit, Bury St. Edmunds. (Half size.)

The flakes thrown off in the course of making these early implements would often be of such a size, and have such sharp edges, that their utility for cutting purposes must have been immediately evident. In this way a tool comparable to a knife must have been one of the first known to man.

From the point of view of Art the greatest interest must attach to these primitive worked flints, for in their presence we are brought face to face with man's earliest efforts at form for a definite purpose. Simple indeed do they appear. Yet much more difficult to skilfully accomplish than might be supposed, as anyone will find who endeavours to copy them. As man's first artistic efforts they can but impress us with a deep interest, and something approaching awe. As was eloquently said by the enthusiastic and untiring antiquary to whom we owe the first recognition of these simple instruments as the handi-

work of man—"Let us not despise them, these the first attempts of our forefathers, however imperfect they may appear when compared with the work of modern artists. If they had not made them," continues Boucher de Perthes, "or if they had not persevered in their efforts, we should have neither our towns nor our palaces, nor the works of art which we admire therein. He who struck the first pebble against another to give it regular form, gave the first blow of the chisel which made the Minerva and the figures of the Parthenon."[1]

Boucher de Perthes believed that he had found in the river gravels stone objects of a more strictly artistic character. These which have been termed "Figure stones" consist of slightly worked pieces of stone which naturally simulate some animal form as, for example, a bird's head. The natural form of the stone, it is suggested, was emphasized by a slight chipping to indicate some feature such as an eye. Little or no support has been given to these views. There is, however, nothing antecedently impossible or improbable about them, but rather the reverse. The primitive people who could so well chip a piece of flint as to form an axe or an oval tool, might very well sufficiently appreciate the forms of animals, to attempt to copy them when aided by nature with chance similitudes. One thing is certain, namely, that the clever artistic work of the cave-dwellers, to be described later on, must have been preceded by a long period of less successful effort which ultimately led up to it. Recently some support for the views of Boucher de Perthes has been brought forward by Mr. W. M. Newton as the result of his discovery of similar "Figure stones" in a gravel pit at Dartford.[2]

[1] *De l'Homme Antédiluvien et ses Œuvres*, Paris (1860), p. 58.

[2] See a paper read before the Oxford Anthropological Society, 1 Dec., 1910: and cf. Capart, *Primitive Art in Egypt*, p. 185, Fig. 146.

2. *STONE IMPLEMENTS FROM CAVES AND ROCK SHELTERS.*

Whilst extinct mammals, such as those previously mentioned, roamed over the south of England, then forming one land mass with the Continent, Palæolithic man made use of caves and rock shelters as places of abode and

FIG. 3.—Flint implement from the breccia. Kent's Cavern. Compare with Fig. 1. (Three-quarter size.)

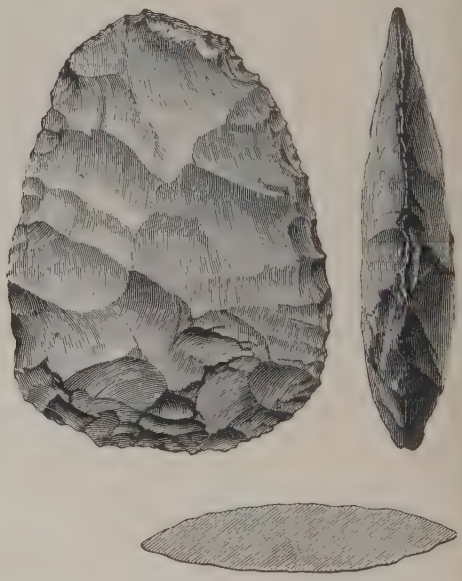


FIG. 4.—Flint implement from the Cave Earth. Kent's Cavern. (Half size.)

occasional retreat, for in many instances his implements have been found therein associated with the remains of these animals, and of many others such as the Cave Bear, Cave Lion, Bison, and Reindeer. The extent and nature of the floor deposits of these caves show that some of them must have been inhabited off and on during a long time.

One of the most interesting, striking, and convincing in this regard is *Kent's Cavern*, near Torquay in Devonshire. Here beneath four distinct strata, including two of stalagmite several feet thick, and one of cave earth varying from three to twelve feet in thickness, is a breccia, in which were found worked flints at once recalling those of the river gravels (Fig. 3, compare Fig. 1). In the cave earth between the two layers of stalagmite more elaborately worked flints and implements of bone were discovered (Fig. 4).

3. *CHRONOLOGY OF THE PALÆOLITHIC PERIOD.*

But it is from the caverns and rock shelters of south-west France that the most striking evidence of Palæolithic man has been obtained. These retreats, especially those in the Dordogne district, have yielded such a rich harvest of man's handiwork that it is possible with little imagination to picture the life led by the people who inhabited them.

Judging by the character of the stone implements, and the nature of the animal remains found in them, the distinguished French anthropologist, G. de Mortillet, long ago suggested that they formed a rough chronological series. For the purposes of definition certain caves and shelters were taken as typical of the different stages, and their names used for classification. Three steps in the series were thus distinguished :—

1. *Mousterian*, from the cave of *Le Moustier*, situated on the right bank of the river Vézère, a tributary of the Dordogne, in which stone implements were found associated with remains of the Mammoth (*E. primig.*), the Woolly-haired Rhinoceros (*R. tichorhinus*), and Cave Bear (*Ursus spelæus*). Two of these implements are very characteristic. They differ fundamentally from the preceding chellian forms in not being formed directly out of a

natural piece of flint, but from a flake struck off from it. Moreover this flake is worked on one side only, either to a point, producing an implement with two sharp convex edges converging and meeting at the top, the precursor of the spearhead (Fig. 6) ; or to a sharp curved edge furnishing an instrument which has been compared to a chopping tool, or it might be used as a scraper (Fig. 5). The edges of these implements were obtained by a series of small continuous flakings. The climate during this epoch was apparently cold and damp.

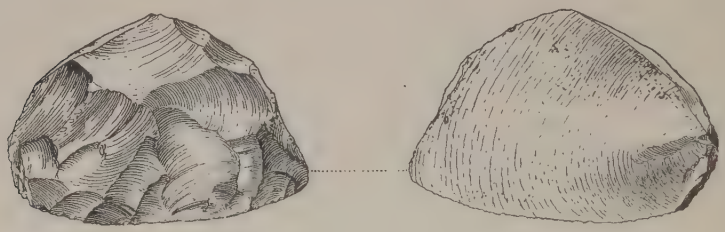


Fig. 5.—Mousterian scraper from the cave of Le Moustier.

ii. *Solutrian.* The second stage is termed Solutrian from *Solutré*, an open station in the department of Saone et Loire, but it is quite as well represented by the rock shelter of *Laugerie Haute* on the banks of the Vézère. A remarkable advance now appears in the working of stone. Highly and beautifully worked leaf-shaped implements were made (Fig. 8). Two such shapes may be distinguished comparable one to the laurel, the other to the willow leaf. In fact the art of stone-working, so far as the Palæolithic period is concerned, now reached its highest development, and the productions of Solutrian man will compare favourably with good Neolithic work. Another characteristic stone implement is a finely-chipped point with a notch on one side, the *pointe à cran* of French anthropologists (Fig. 7). The animals associated with these implements differ considerably from those of the preceding Mousterian fauna.

The Rhinoceros has disappeared, the Mammoth is less numerous, the Reindeer becomes common, and the Horse abundant. Objects of Bone, Horn, and Ivory are found,

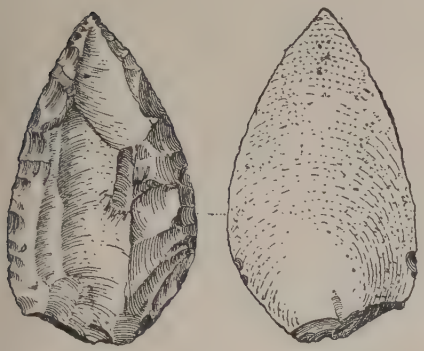


Fig. 6.—Mousterian pointed implement from the cave of Le Moustier.

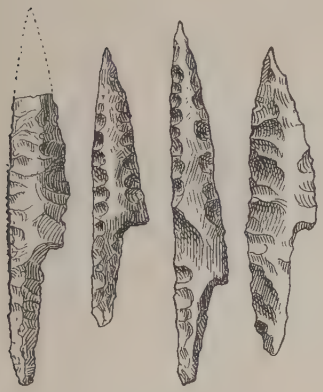


Fig. 7.—Solutrian implements. (*Pointes à cran.*)

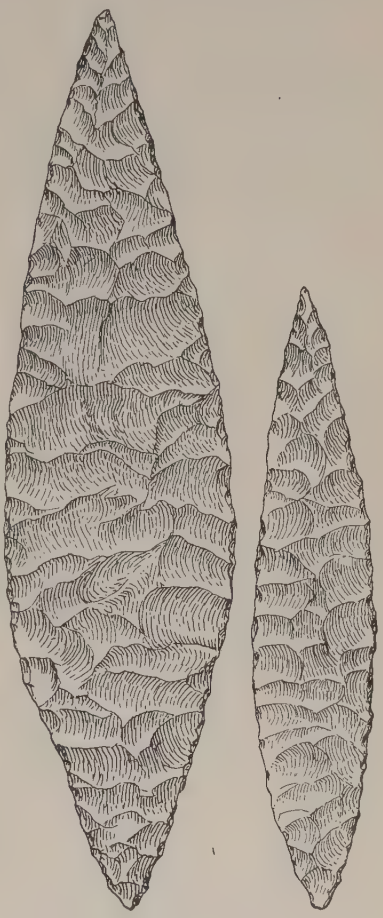


Fig. 8.—Solutrian implements from Solutré.

and the beginnings of that art which later attained such a high development make their appearance. The climate, while still cold, was probably drier and less rigorous.

iii. *Magdalenian.* The third stage is named after the celebrated rock shelter of *La Madeleine*, also situated on

the banks of the river Vézère. This shelter, one of the most interesting and richest in prehistoric relics, was among the first explored. It is situated about thirty yards from the river, and only a few yards above it. The site occupied by Palæolithic man was about fifty feet in extent, and the floor deposit containing evidence of his presence was six or seven feet thick. The beautifully worked flints characteristic of the Solutrian period have now disappeared, and flakes of all sizes are the chief characteristics of the

Fig. 9.—Aurignacian bone point with cleft base.

Fig. 10.—Aurignacian implements. (1) Scraper. (2 and 3) Retouched flakes. (4 and 5) Borers.

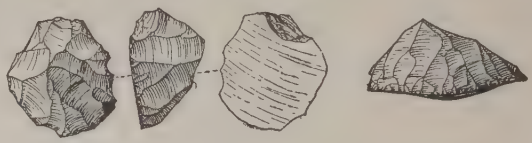


Fig. 11.—Aurignacian keel-shaped scrapers.

stone working of this stage. The Mammoth is now rare, and the Reindeer very abundant. In a climate very cold and dry the fauna has an Arctic character, the Reindeer having as companions the Musk Ox, Blue Fox, Lemming, Glutton, and Grizzly Bear.

French anthropologists have introduced a fourth stage between the Mousterian and Solutrian, and call it the *Aurignacian*, after the well-known cave of Aurignac in the department of Haute Garonne. Its differentiation is

based on the appearance of pointed bone implements, often with a cleft base, of stone implements with finely retouched edges, scrapers with a keel-shaped back, the presence of gravers and the first signs of sculpture and engraving[1] (Figs. 9, 10, 11). The fauna was complex, for it included the Rhinoceros tichorhinus, Cave Bear, Cave Hyena, Bison, Reindeer, and Horse. The presence of the last points to the climate being milder than in the preceding Mousterian epoch.

The three stages—Aurignacian, Solutrian, and Magdalenian—together constitute what is often called the *Reindeer Age*, from the abundance of that animal which became increasingly numerous in the latter part of it. They also correspond to the *Glyptic Period* of M. Piette, that is the period of Palæolithic art. South-western France is the classic ground of this art, for it is in the departments of Dordogne, Gironde, Landes, Haute Garonne, Charente, Ariège, Hautes and Basses Pyrenées that it is chiefly and most highly manifested (Fig. 12).

It is a curious and interesting fact that after attaining such striking excellence in the Solutrian epoch, the working in stone shows a decline in the period of La Madeleine. The beautiful leaf-shaped instruments are replaced by more roughly-made tools. Flakes of different sizes are very common, and characteristic among them are long narrow ones struck off at a single blow. This may to some extent be explained by man's artistic taste finding other fields for its expression, for it is now that working in bone and horn was greatly developed, and engraving flourished. Harpoons and spear-throwers made of reindeer-horn are characteristic of this period, and Batons de Com-

[1] Cf. H. Breuil, "Les Gisements Pré-Solutriens du type Aurignac," in *Congrès Internat. d'Anthrop.*, Monaco, 1906, II., pp. 273 ff., and "Les Subdivisions du Paléolithique Supérieure et leur signification," in *Congrès Internat. d'Anthrop.*, Geneva, 1912, pp. 165 ff.

mandement of the same material and bone needles become more abundant than in the preceding period. A stone tool which makes its first appearance in the Aurignacian period now becomes more common. It is the *graver*, a flint flake worked to a point with which were executed the engravings so characteristic of this time (Fig. 13). Occasionally the flake has a point at both ends forming a double

FIG. 12.—Map showing districts where examples of Palæolithic Art have been found. (From *La Caverne d'Altamira*.)

graver; in other cases the opposite end is flaked to an edge so that it could be used as a scraper. Worked to a still finer and longer point, and a *borer* was obtained. Other flints were so chipped as to form a dented, or saw-like edge, producing a tool serviceable for rounding or shaping bone or horn.

At La Madeleine, and especially at Les Eyzies, flat rounded pieces of granite, quartz, or sandstone with a circular

shallow depression in the middle have been discovered (Fig. 14). They form a sort of shallow *mortar*, and might very well have been used for grinding up pigment, and making a paste of it for decorating the body, after the manner of modern uncivilized tribes, or for executing the

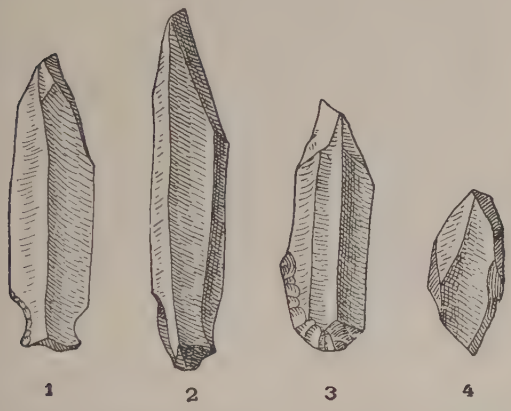


FIG. 13.—(1 and 2) Gravers. (3) Graver and scraper. (4) Double graver.

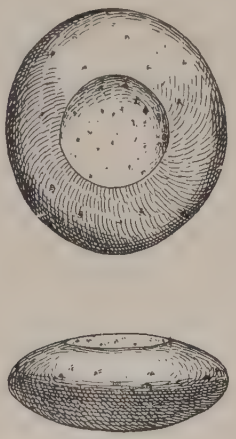


FIG. 14.—Stone mortar. Laugerie Basse.

paintings on the walls of caves so well exemplified in the neighbouring cavern of Font de Gaume. Ochre has been found in several caves, and in quite large quantities at Les Eyzies.

4. *CHRONOLOGY OF THE PREHISTORIC PERIOD.*

Age.			*Typical Fauna.*
Palæolithic.			
Early.	Chellian.		Hippopotamus. Rhinoceros Merckii. Elephas Antiquus.
	Acheulian.		Mammoth. Rhinoceros tichorhinus.
Middle.	Mousterian.		Mammoth. R. tichorhinus.
Late.	Aurignacian. Solutrian. Magdalenian.	*Glyptic* or Age of Palæolithic Art.	Reindeer.
? Transition.	Azilian.		Stag (Cervus elaphus).
Neolithic.			Existing Forms.
Bronze.			,, ,,
Early Iron.			,, ,,
Hallstatt.			
La Tène—Late Keltic.			

CHAPTER III.

PALÆOLITHIC ART.

It was in the year 1863 that two distinguished antiquaries, a Frenchman E. Lartet, and an Englishman H. Christy, began to explore the caves and rock shelters on the banks of the river Vézère, in the department of Dordogne, in south-west France[1] (Fig. 15). Their labours were rewarded with discoveries which can only be described as epochmaking. Several of the caves and shelters explored by them as, e.g., La Madeleine, Les Eyzies, Laugerie Haute, and Laugerie Basse, have become classical, for they contained so many objects of stone, bone, horn, and ivory, and such quantities of animal remains, as to throw much light on the life of the people who had used them as habitations in a remote prehistoric past. It showed them to have been primitive hunters unacquainted with metals, pottery, agriculture, and domestic animals. The most surprising of these relics were works of art, engravings and carvings exhibiting such ability and realism as at first to arouse scepticism regarding their antiquity. Further investigation in this same district, and elsewhere in southern France, only confirmed however Lartet and Christy's early discoveries. Some of the caves richest in these works of art, as Gourdan, Mas d'Azil, and Lourdes, are situated on the northern flank of the Pyrenees. It was in this district, in the cave of Gourdan, that the late

[1] *Reliquiæ Aquitanicæ*, 1865-75.

M. E. Piette began in 1871 that remarkable series of long, patient, and scientific excavations which have added so much to our knowledge of the prehistoric past. Many of the earlier explorations of the caves had not been conducted with great regard to order and method, and thus much of the significance and value of the discoveries was lost. M. Piette, as an experienced geologist, saw that if

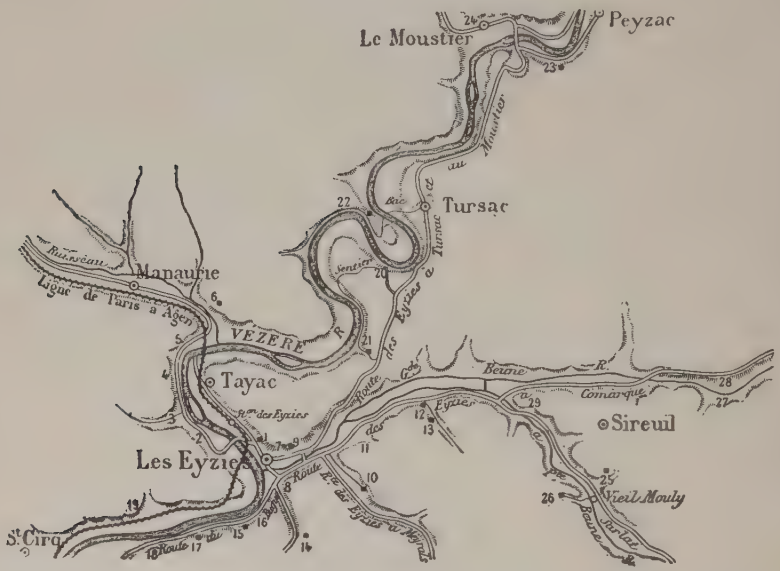


Fig. 15.—Map of the Vézère River District (after Peyrony). (1) Cro-Magnon. (2) Roc de Tayac. (3) Gorge d'Enter. (4) Laugerie Basse. (5) Laugerie Haute. (9) Grotte des Eyzies. (10) Font de Gaume. (13) Combarelles. (14) La Mouthe. (22) La Madeleine. (26) Bernifal. (28) Laussel.

the full meaning of this prehistoric record was to be read, the deposits in which it lay must be carefully examined in a stratigraphical manner. Thus alone could the real relation in time of the various relics discovered be demonstrated. It is to the application by him of this method for thirty years, and by others following in his footsteps, that a sure basis of Prehistoric Chronology has been founded.

M. Piette found a good opportunity for the application of this method in the cave of Mas d'Azil, in Ariège. In a deposit nearly thirty feet deep in this cavern he was able to demonstrate a stratification extending through the Palæolithic period, followed by a transition covered by a stratum containing evidence of Neolithic culture.

1. *WORKING IN BONE AND HORN—CARVING.*

Palæolithic man was a hunter, he lived by the chase. His attention must, therefore, have been called very early to the shape and nature of the bones of the animals he killed, and on whose flesh he fed. One thing he thoroughly appreciated is clearly shown by the remains in the caves, viz. that the long bones contained an agreeable form of food. Innumerable bones have been found with their shafts broken for the purpose of extracting the marrow. A piece of the broken shaft of a long bone would often require little working to make it a rough dagger or an efficient awl, by means of which holes could be made in skins used for clothing. One of the most illuminating discoveries in the Reindeer age in this country and on the Continent is the presence in many of the caves of *bone needles*, with a small neatly bored hole at one end (Fig. 16). In some cases the original eye has been broken, and a second one bored below. The contemplation of one of these little instruments can hardly fail to recall in imagination a phase of the daily life of these early cave dwellers. And this is made the more easy by M. Lartet's discovery in the cave of Trou des Forges, near the village of Bruniquel, on the banks of the river Aveyron, of the tools requisite for making such a needle. Here were found the flint saw for rounding the splinter of bone into shape, a piece of sandstone for burnishing it (Fig. 17), and the flint borer to make the eye. When it was objected that it would be impossible

to make so fine an eye with such a tool, M. Lartet silenced his critics by proceeding to make one in a bone needle

FIG. 16.—Bone needles.

FIG. 17.—Sandstone polisher. Combarelles.

with a stone borer found in the cave. It may be remembered how much Captain Cook was impressed when he saw the Maoris of New Zealand bore small and perfect holes in a piece of glass with a pointed stone. "One of the neatest tools made by Magdalenian man," says M. de Mortillet, "is certainly the eyed needle. These needles are much superior to those of later, even historical times, down to the period of the Renaissance. The Romans, for example, never had needles comparable to those of the Magdalenian epoch." [1]

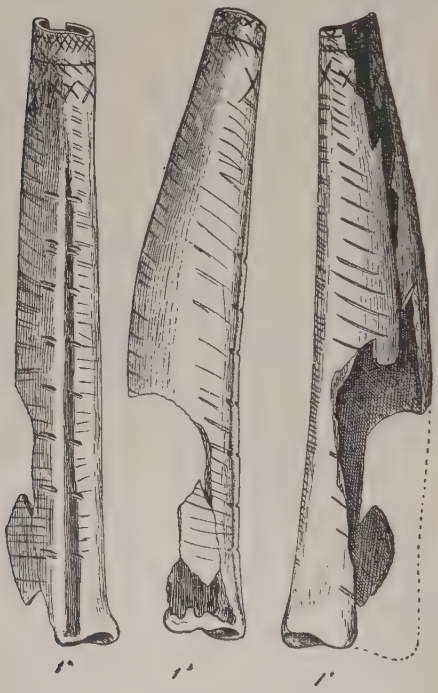


FIG. 18.—Bone tube found with ochre still in it. Grotte des Cottes (Vienne).

[1] *La Prehistoire* (1910), p. 197; and see *Reliquiæ Aquitanicæ*, p. 127, for Lartet's article, "On the Employment of Sewing Needles in Ancient Times".

Very significant and interesting objects in view of the recent discoveries of paintings on the walls of caves are

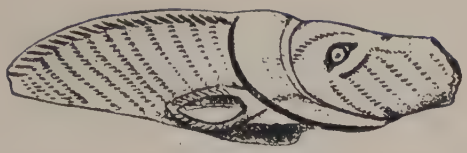


Fig. 19.—Musk ox carved in bone. Kesserloch cave, Thayngen. (Natural size.)

Bone tubes for holding ochre (Fig. 18). One of these made from the cannon bone of a reindeer found in the Grotte des Cottes (Vienne) still had some red ochre actually in it.[1] Others from the caves of Spy and Altamira were made out of birds' bones.[2]

More interesting are the carvings in bone of animal forms. Bone was the material used to sculpture an animal rarely found represented in Palæolithic art, the *Musk Ox* (Ovibos moschatus) (Fig. 19). A carving of the head of this animal was among the important works of art found in the cave of Kesserloch, near Thayngen, in Switzerland.[3]

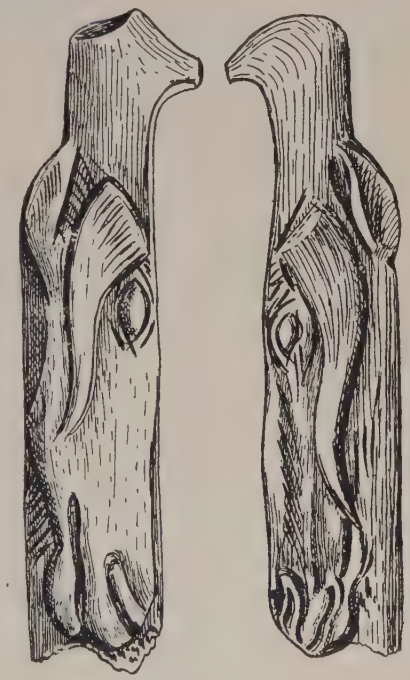


Fig. 20.—Musk ox. Bruniquel. (Natural size.) (From *Cav. Font de Gaume.*)

[1] *Rev. de l'Ecole d'Anthrop.*, Paris (1906), p. 51, Fig. 2.

[2] *Cav. d'Altamira*, p. 258, Fig. 182.

[3] *Mitt. der Antiq. Gesellsch. Zurich* (1875), Band XIX, Heft 1, Taf. VII, Fig. 66 : Piette, *L'Art pendant L'Age du Renne*, Plate VI, Fig. 2.

Another example carved in horn was discovered in the Trou des Forges at Bruniquel (Tarne et Garonne)[1] (Fig. 20). Carving in champlevé is seen in the form of a *Seal* on the vertebra of an ox, from a cave at Brassempouy (Landes)[2] (Fig. 24). The spongy structure of the interior parts of many bones, and the flatness of others, detract from their value for carving either in the round or in relief. This disadvantage in the case of flat bones appears to have given rise to a method of working termed *gravures à contours découpés*, which is of much interest if,

Fig. 21.—Wild cat. Contours découpés. S. Michel d'Arudy. (From *La Cav. Font de Gaume.*) (Natural size.)

as M. Piette believed, it was an intermediate or transition form from carving in relief to engraving. The outline of the figure was cut out of a flat piece of bone, and the features emphasized by incised lines, the two opposed designs not always exactly corresponding. *Horses' Heads* executed in this manner come from several sites in the Pyrenean region, e.g. Mas d'Azil, Lorthet, Lourdes, Enlène, and Arudy (Figs. 22 and 23). From the last also the

[1] *La Caverne de Font de Gaume*, Fig. 182.
[2] Piette, *op. cit.*, Plate LXXXI, Fig. 1.

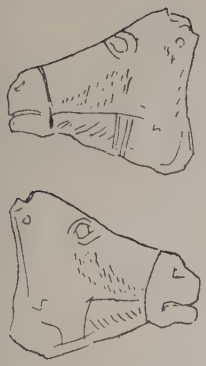


Fig. 22.—Mas d'Azil.

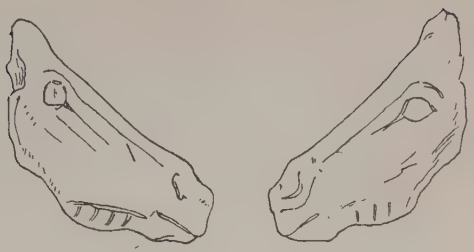


Fig. 23.—Enlène.

Gravures à Contours Découpés.

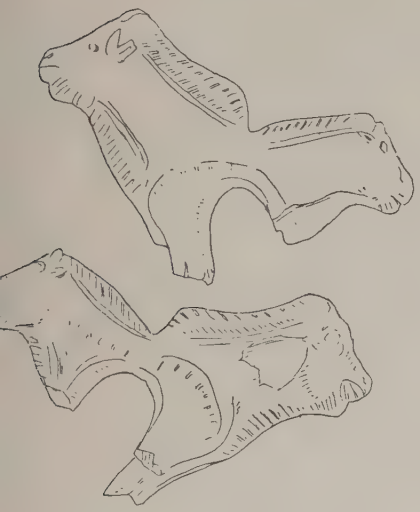


Fig. 25.—Laugerie Basse.

Fig. 24.—Seal in champlevé in bone. Brassempouy.

Fig. 26.—Bison. Mas d'Azil.

Fig. 27.—Reindeer dagger handle. Laugerie Basse.

Carving in the Round in Reindeer Horn.

head and shoulders of a *Wild Cat*, cut out of a piece of a shoulder blade[1] (Fig. 21).

Palæolithic man found a material more easily worked and more suitable for carving and sculpture in the antlers of the Reindeer, an animal living round him in large numbers. He made great use of reindeer horn for the manufacture of weapons like Javelin Heads, Harpoons (Fig. 28), Spears, and Spear Throwers: also of the so-called Batons de Commandement which have attracted much attention on account of the way in which they were often carved and engraved. No small talent is shown by the prehistoric artists in carving horn both in the round and in relief.

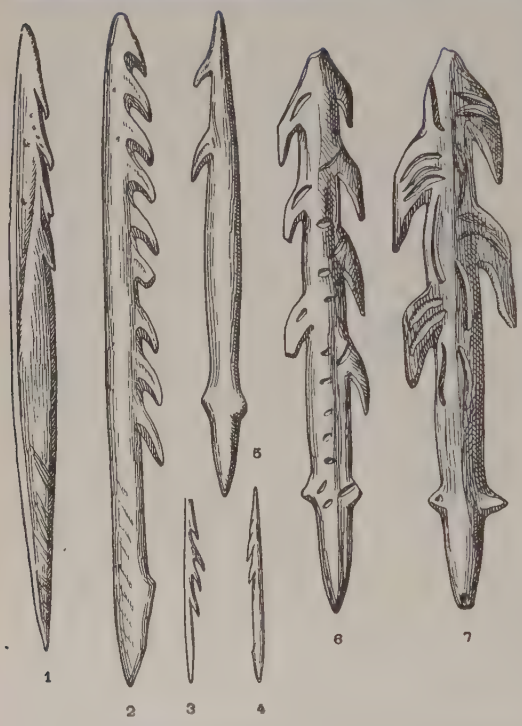


FIG. 28.—Harpoons of reindeer horn. (1) Mas d'Azil. (2) Bruniquel. (3, 4, 5) La Madeleine. (6, 7) Lorthet.

An admirable example of the former is seen in one of the early discoveries of Lartet and Christy in the valley of the Vézère. It was found at Laugerie Basse, and is a *dagger handle carved in the form of a reindeer* (Fig. 27). This shows not only the skill of the artist as a sculptor of animal

[1] Piette, *op. cit.*, Plates X, XVIII, XLIII, LXI, LXXVIII, XCII.

PLATE II

Sculptured in reindeer antler. Mas d'Azil. Ariège.
(From Cartailhac's *La France Préhistorique.*)

form, but also in adapting his work to practical ends. The animal is represented in a kneeling position with its head thrust forward bringing the antlers down on the neck and shoulders: the forelegs are bent under the body, and the hind legs thrown back lose themselves in the blade. The natural irregularities are thus reduced to a minimum, and the object better adapted to the hand, whilst still retaining its essentially artistic character.[1] From the same shelter comes the end of a baton de commandement carved in the form of two conjoined *opposed heads of a bovine animal* (Fig. 25). A part of the orifice of the baton is seen below them.[2] This piece claims attention from its being, as M. S. Reinach has pointed out, the earliest example of the employment of two similar opposed animals as a form of decoration so often used in later times.[3] A small rough carving of a hare or rabbit was also discovered at this station.[4]

Some of the most remarkable sculptures in the round were among the discoveries of M. Piette in the cavern of Mas d'Azil (Ariège). One of them is an antler with two of its tines sculptured in the form of *Horses' Heads*, and a third head carved in relief (Plate II). This is a powerfully realistic piece of work.[5] Another Horse's Head has attracted even more attention, for it clearly represents the animal *neighing*[6] (Fig. 29). Another is a statuette of an animal rarely found carved, though so often drawn on the walls of caves, the *Bison*. Although the head is wanting, the attitude of the body is very natural[7] (Fig. 26). In

[1] *Reliq. Aquit.*, Plate B, XIX and XX.
[2] Piette, *L'Art pendant L'Age du Renne*, Plate VI, Fig. 1.
[3] *La Sculpture en Europe avant les Influences Gréco-Romaines*, p. 109.
[4] Piette, *op. cit.*, Plate VI, Fig. 6.
[5] Cartailhac, *La France Préhistorique*, Fig. 30, p. 71.
[6] *L'Anthropologie*, xv., p. 142, Fig. 16.
[7] Piette, *op. cit.*, Plate LXV, Fig. 6.

the cave of S. Michel d'Arudy another headless sculpture was found. It is the body of an *Ibex* with its four feet close together, the animal being thus represented in an attitude so characteristic when standing on a small isolated

FIG. 29.—Neighing horse. Horn. Mas d'Azil.

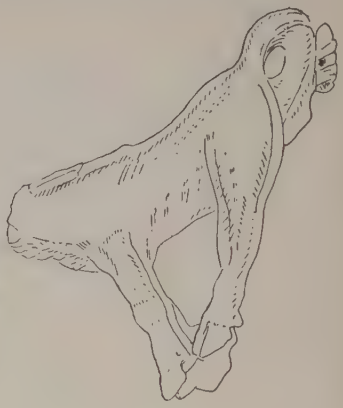


FIG. 30.—Ibex. Arudy.

rock (Fig. 30). This piece may well have served as a dagger handle.[1] Another supposed dagger handle is in the form of a *mammoth* sculptured out of a reindeer antler found at Monastruc, near Bruniquel. The arrangement of

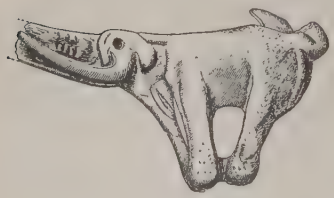


FIG. 31.—Mammoth, carved in horn. Bruniquel.

FIG. 32.—Restoration of Fig. 31 as a dagger handle.

the head, trunk, tusks and limbs, suggest that it was so intended[2] (Figs. 31 and 32). An excellent carving of the head of the *Great Stag* (Fig. 35) is supplied by the same

[1] Piette, *op. cit.*, Plate XCI, Fig. 10.

[2] *Brit. Mus. Guide—Stone Age*, Figs. 56 and 57.

FIG. 33.—Urus (*Bos primigen.*). Lourdes. (Natural size.)

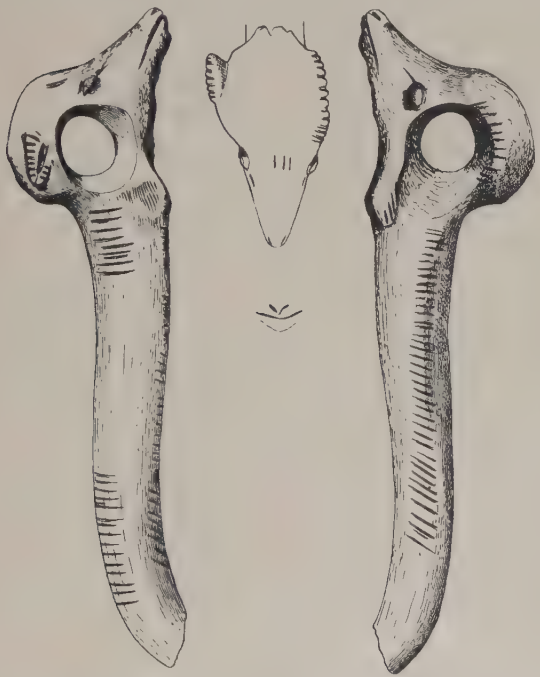


FIG. 34.—End of baton as fox's head. Placard. (Quarter size.)

FIG. 35.—Great stag. Monastruc. (Natural size.)

CARVING IN THE ROUND IN REINDEER HORN.
(From *Cav. Font de Gaume* and *Cav. Reg. Cantabrique.*)

station,[1] and another of the *Urus* (Bos primigenius) by the cave of Espélugues, at Lourdes[2] (Fig. 33). The end of a baton from Placard (Charente) is carved in the form of a *Fox's head*, the hole piercing the middle of it[3] (Fig. 34). Count Bégouen has recently described the body of an animal sculptured in horn which he discovered in the cave of Enlène, Montesquieu-Avantas (Ariège). It is headless, but probably a deer, and Abbé Breuil has sug-

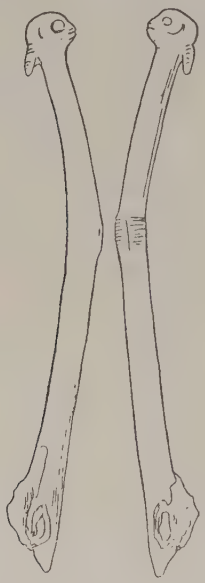


Fig. 36.—Baton. Gourdan.

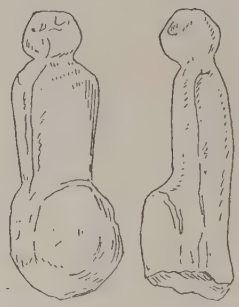


Fig. 37.—Human figurin, horn. Pont-à-Lesse (Belgium).

gested a clever reconstruction by which the carved figure of the animal makes an appropriate and highly artistic termination of a baton.[4] The end of a curved baton from Gourdan is carved in the form of an *anthropomorphic head*[5] (Fig. 36). A figurin in horn from the Trou

[1] *Les Cavernes de la Region Cantabrique*, Fig. 47, p. 222.
[2] *La Caverne de Font de Gaume*, Fig. 182 (3), p. 198.
[3] *Ibid.*, Fig. 130, p. 159.
[4] *L'Anthrop.*, XXIII., p. 287, Figs. 3, 6, 10.
[5] Piette, *op. cit.*, Plate VIII, Fig. 1.

FIG. 38.—Spear thrower. Mas d'Azil. (Half size.)

FIG. 39.—Raymonden (Dordogne). (Half size.) (From *Cav. Reg. Cantab.*)

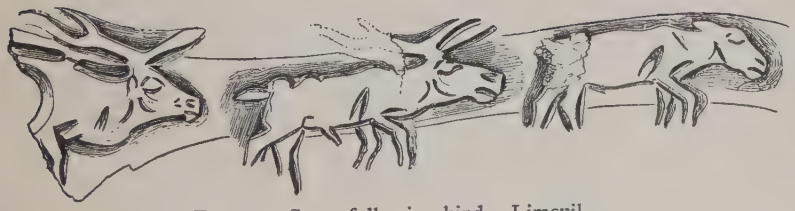


FIG. 40.—Stags following hind. Limeuil.

CARVING IN RELIEF IN REINDEER HORN.

Magrite, Pont-à-Lesse, in Belgium, has been described by Dupont as representing a human being [1] (Fig. 37).

Of sculptures in relief in reindeer horn an excellent example is among the many discoveries at Mas d'Azil. It is a spear, thrown on the front of which is carved the head, breast, and forelegs of an *Ibex in relief* (Fig. 38). It shows what is rarely seen in these early carvings, some skill in foreshortening. The details are so cleverly ar-

Fig. 41.—Fish in relief bone. Mas d'Azil.

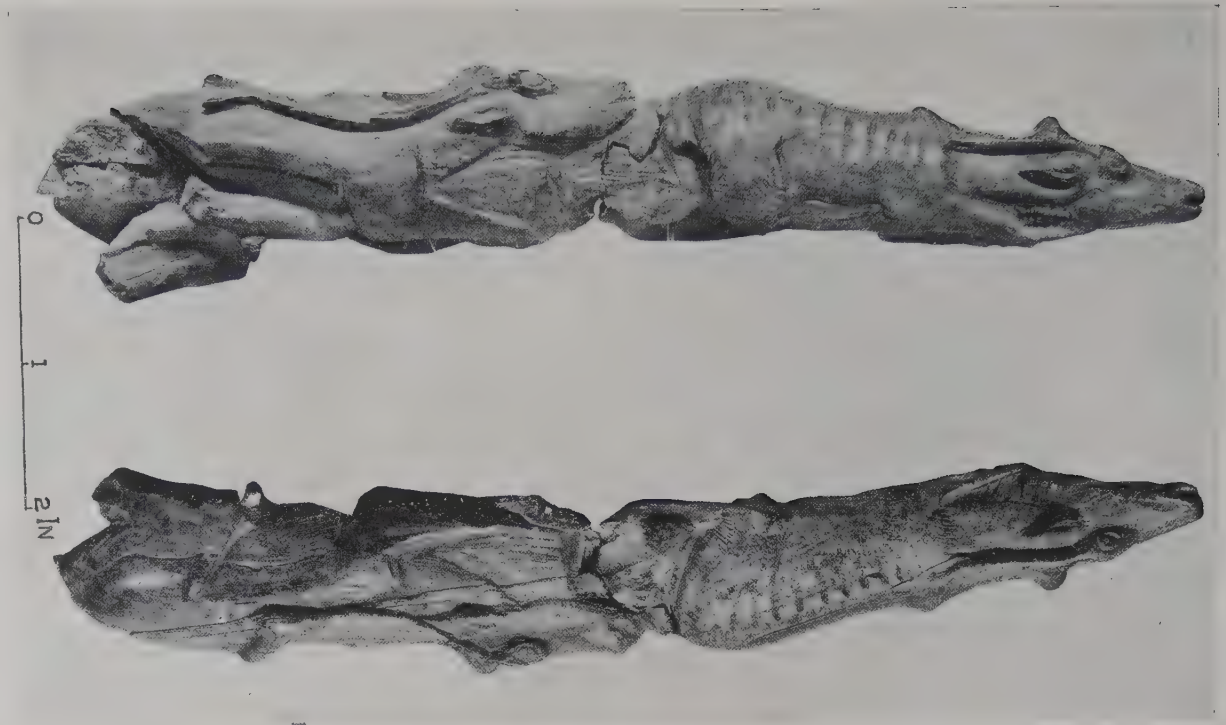
ranged that the carved surface is adapted to receive the spear when used.[2] From the same source is the head of a *Saiga antelope*,[3] and an excellent bas-relief of a *fish* [4] (Fig. 41). A realistic sketch in bas-relief of two stags following a hind was found at Limeuil (Dordogne) [5] (Fig. 40), and a really remarkable relief of a large *beaked bird* at Raymonden (Dordogne) [6] (Fig. 39).

2. *WORKING IN IVORY—SCULPTURE.*

The tusks of the mammoth provided the Palæolithic artist with that material which has so often invited man to carve and sculpture, ivory. At Monastruc, near Bruniquel, two ivory sculptures of exceptional interest were discovered. They have generally been regarded as dagger handles, for they are almost replicas of the supposed dagger

[1] E. Dupont, *L'Homme pendant L'Age du Renne*, Fig. 8, p. 92.
[2] *L'Anthropologie*, v., Fig. 1, p. 130.
[3] Piette, *op. cit.*, Plate LXV, Fig. 2.
[4] *Ibid.*, Plate LVIII, Fig. 1.
[5] *Caverne de Font de Gaume*, Fig. 225, p. 226.
[6] *Les Cav. de la Region Cantabrique*, Fig. 236.

PLATE III



(From Brit. Mus. Guide to the Stone Age.)

handle of reindeer horn already described. The animal is represented in the same attitude with the antlers thrown back upon the neck and shoulders, the forelegs however appear to be pushed forward rather than bent under the body. The heads of these animals are carved in a most lifelike manner, and must have been the work of no mean artist. It seems impossible now to regard these objects as dagger handles, for on careful examination and placed one in front of the other, they so closely fit together as to show that they originally formed one piece [1] (Plate III).

Recently a statuette of a *Mammoth* in ivory was discovered near the village of Předmost in Austria, well known for its Solutrian settlement described by Maska in 1884, from which the remains of hundreds of mammoths were recovered. It is about five inches long and four in height. The tusks are not shown and the trunk loses itself in the feet. Characteristic features of the animal however are seized by the artist who had evidently seen it alive (Fig. 42).[2] An ivory figure of a *Horse* found in a cave at Lourdes was described by M. Piette as "une des œuvres les plus rémarquable des sculptures de l'Age du Renne". It is peculiar in having the surface of the body largely covered with rows of small engraved lines, giving it a spotted appearance [3] (Fig. 43).

Fig. 42.—Ivory statuette of mammoth. Předmost, Moravia.

[1] *Brit. Mus. Guide—Stone Age*, 2nd ed., Plate II, from which Plate III is copied by permission of the Museum authorities.

[2] *L'Anthropologie*, XXIII., Fig. 1, p. 273.

[3] "L'Equide Tacheté de Lourdes," par E. Piette in *Bull. Soc. d'Anthrop. de Paris* (1892), p. 436, Plate I, and cf. *L'Anthrop.*, XVII., Fig. 28, p. 51.

An exceedingly interesting study in high relief was among M. Piette's many discoveries at Mas d'Azil. It

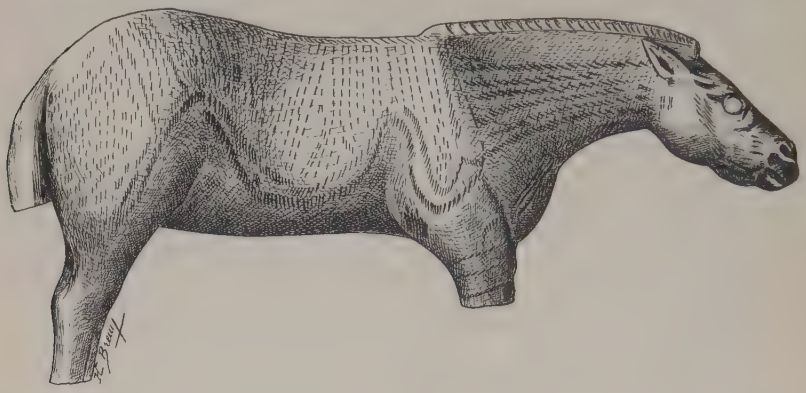


FIG. 43.—Horse sculptured in ivory. Lourdes. (About 3 inches long.)

represents an *Ibex* in full side view, carved in ivory, the attitude being natural and realistic[1] (Fig. 44). This is one of the only two examples of sculpture *in high relief* yet discovered. The other is a carving of the feet of a bovine animal, also from Mas d'Azil.[2]

FIG. 44.—Ibex in high relief, ivory. Mas d'Azil.

Ivory was the medium in which were made those artistic efforts of Palæolithic man that must appeal most strongly to every student of prehistoric times, and to every artist, for they had for their object the portrayal in sculpture of the human body. Unfortunately most of the few specimens which have been recovered are only fragments, yet they at least give some evidence of good modelling. One of the earliest and best known examples is an ivory statuette

[1] Piette, *op. cit.*, Plate XLIX, Figs. 1 and 1A.

[2] *L'Anthrop.*, v., Fig. 6, p. 135.

discovered by the Marquis de Vibraye at Laugerie Basse. It is a *female figure*, headless, armless, and without feet. Several features of the trunk and limbs are, however, distinctly characterized [1] (Fig. 45).

In the year 1888, M. Piette discovered in the cavern of Mas d'Azil the *statuette of a woman* sculptured out of the tooth of an equine animal. It shows the head, neck, and upper part of the body, but no arms. It is of much interest because the main facial features are discernible. They in common with the rest of the head suffer from the artist being obliged, owing to the hardness and intractability of enamel, of carving them out of the conical root of the tooth. The forehead is straight, and takes up about a third of the face. The nose is large and prominent, in no sense flattened, the lips are thick, and the upper overlaps the lower: the chin is retreating, and the cheek bones slightly prominent. The ear is large. The breasts are long and pendant. On the neck are three transverse lines which have been supposed to represent a necklace [2] (Fig. 46).

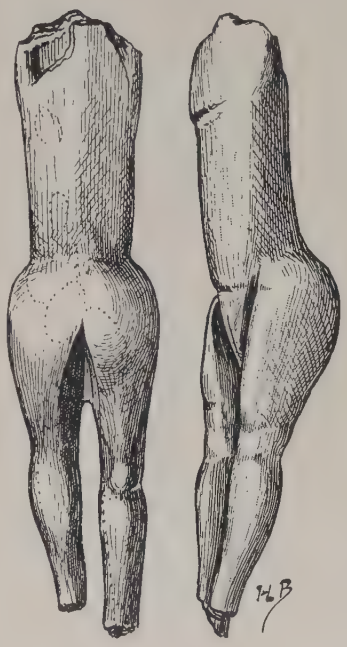


FIG. 45.—Ivory statuette. Laugerie Basse. (From *L'Anthropologie.*)

But it is at Brassempouy in the Landes that the most important discoveries have been made. From a cavern known as "la grotte du Pape," the fragments of no less than seven statuettes have been recovered. One of these,

[1] *L'Anthrop.*, XVIII., Fig. 1, p. 10.

[2] Piette, *op. cit.*, Plates XLIII and XLIV.

found in 1892, notwithstanding that it is headless and without arms or legs, and is much damaged, has attracted much attention for it shows excellent modelling, and was considered by M. Piette as the best of these works of art

Fig. 46.—Mas d'Azil statuette. (Twice natural size.) (From *L'Anthropologie.*)

Fig. 47.—Statuette in ivory. Brassempouy. (Natural size.) (From *L'Anthropologie.*)

which have come down to us from the hands of these primitive sculptures [1] (Fig. 47). The most striking of the Brassempouy statuettes is that termed *à la capuche*, from its curious head of hair recalling the well-known Egyptian head-dress. It shows distinctly several of the facial features. The

[1] Piette, *op. cit.*, Plate LXXII.

mouth is not shown, but the eyes, eyebrows, and nose are very distinct. The face contracts to a pointed chin. The hair covers the ear and neck[1] (Fig. 48). The ivory of this

FIG. 48.—Statuette à la Capuche. Brassempouy. (Natural size.)
(From *L'Anthropologie.*)

specimen is singularly well preserved owing to its having been protected from water by an overlying hearth of compact clay. The deposits above, and in which these statuettes were found, contained many bones of the mammoth and woolly-haired rhinoceros, also numerous hearths, and stone implements of Solutrian and pre-Solutrian character. In fact they appear to be of Aurignacian age. The remaining sculptures were more fragmentary. One consists of the trunk only, and possibly formed a dagger handle;[2] another of the trunk with one thigh (Fig. 49).[3] The term *Figurin a la ceinture* was given to a piece composed of the legs and lower

FIG. 49.—Ivory figurin. Brassempouy.

[1] Piette, *op. cit.*, Plate LXXI, Figs. 1, 1*a*, 1*b*, 1*c*.
[2] *Ibid.*, Plate LXXIV, Fig. 1.
[3] *Ibid.*, Plate LXXIII, Figs. 1 and 1*a*.

part of the trunk surrounded by a band[1] (Fig. 50). A broken specimen showing an up-bent arm and head covering is known as the *statuette à la pèlerine*.[2] A small rough model of the human figure was perhaps a doll.[3] An interesting discovery at Brassempouy in relation to these figures was that of a piece of ivory cut down and roughly shaped for a statuette. In fact it obviously represents an early stage in the carving of such a figure : it is a statuette in the making,

Fig. 50.—Figurin à la Ceinture, ivory. Brassempouy.

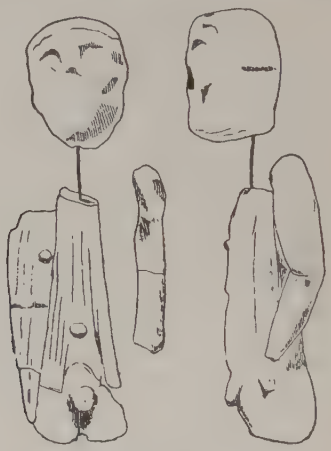


Fig. 51.—Ivory figurin. Brünn (Moravia).

and shows that these sculptures were made on the spot, and not imported from elsewhere.[4]

At Brünn, in Moravia, in 1891 Makowsky discovered in undisturbed loess at a depth of 15 feet an *ivory male figurin*, or idol as it has often been called. It was associated with a skull of Neanderthal type, several hundred dentalium shells, and the tusk and scapula of a mammoth. It is a crude production : the only noticeable feature being

[1] *L'Anthrop.*, VI., Plate VII, Fig. 1.
[2] Piette, *op. cit.*, Plate V, Figs. 1 and 1*a*.
[3] *Ibid.*, Plate LXXXIV, Figs. 4, 4*a*, 4*b*.
[4] *Ibid.*, Plate LXVII, Fig. 1.

marked supra-orbital ridges, thus resembling the skull found near it (Fig. 51). Its situation and associated objects point to its being of Palæolithic age, though some scepticism has been shown on this point.[1]

3. *SCULPTURE EARLIER THAN ENGRAVING.*

The study of man's earliest artistic efforts lends support to the view that sculpture preceded engraving in the evolution of the representative arts. The careful examination of the stratified deposits of a number of caves, e.g. Gourdan (H. Garonne), Lorthet (H. Pyrenées), Espélugues d'Arudy (B. Pyrenées), Mas d'Azil (Ariège), Brassempouy (Landes), brought M. Piette to this conclusion. Moreover the oldest sculptures appear to be in the round. This is well illustrated by the statuettes from Brassempouy just described. Carving in relief was a later development, and the so-called "contours découpés" later still. A clear and certain interpretation is sometimes rendered difficult by the fact that sculpture of course continued to be practised side by side with engraving, and also owing to the want of evidence so far of sculpture of animals in the round so ancient as that of the human figurins.[2] The view that sculpture preceded engraving may be supported also on *a priori* grounds. It may well be urged that man

[1] *Mitt. d. Anthrop. Gesellsch.* (Vienna), XXII. (1892), p. 73, Plate II.

[2] Abbé Breuil places the statuettes other than those from Brassempouy at the beginning of the Magdalenian period; cf. *Rev. de l'Ecole d'Anthrop.* (1908), p. 217. Also "L'Evolution de L'Art Quaternaire," in *Revue Archéologique* (1909), p. 378. In this important and interesting contribution Abbé Breuil reviews the work and views of M. Piette, and whilst admitting that his conclusions were right in the main, points out how in some respects they were too narrow, more especially in not realizing the lateness of some animal sculpture and the fact that engravings of Aurignacian age had been discovered.

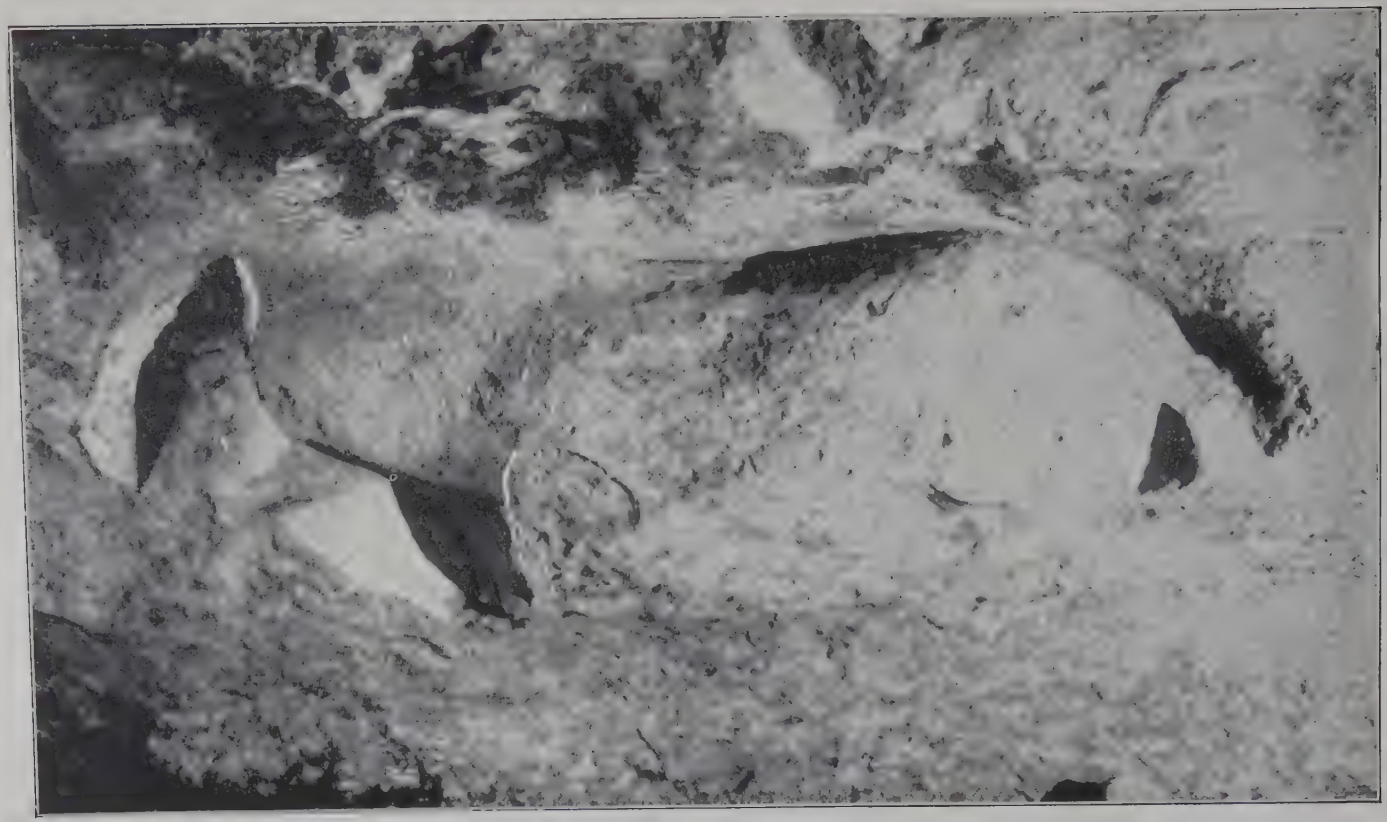
in the first instance would naturally endeavour to copy as closely as possible what he observed, and would try to represent a solid body with front, back, and sides in keeping with his experience of it. To represent a solid body in two dimensions only, on the flat as an engraving, would require much more reflection, judgment, and artistic interpretation. Moreover it may further be contended that the nature of his experience of life might very well lead him to a knowledge of sculpture. As a hunter he would necessarily from a very early period be brought in contact with the broken bones, horns, and tusks of the animals he killed. These would occasionally be of such a shape as to be immediately useful as imperfect tools and weapons. In the struggle for existence his attention might well be directed to fashioning them into more useful and perfect forms, and often little working would be necessary to produce an efficient awl or dagger. Carving in its simplest form would thus arise. It would be no great step for him to attempt to carve in the same material other objects, and as his skill improved and the art developed, even the animals around him. Thus sculpture in the stricter sense of the word would be evolved.

4. *SCULPTURE IN STONE.*

Until quite recently there was little evidence of stone being used for sculpture at this early period. The first discovery of the kind was at the station of Solutré of *four figures of Deer* represented lying down. The heads are wanting in all of them[1] (Fig. 52). A horse's head sculptured in jet was found in the cave of La Mairie at Teyjat (Dordogne), and another at Mas d'Azil. Amulets of the same material have been discovered in the Trilobite cave

[1] "Nouvelles fouilles du Solutré," par A. Arcelin, *L'Anthrop.*, I., p. 306.

PLATE IV



and at Kesserloch.[1] On an exposed rock surface at Laussel in the valley of the Beune, a tributary of the Dordogne, the figures of several *horses sculptured in high relief*, and arranged as a sort of frieze, have recently been described by MM. Lalanne and Breuil. Two of them are of surprising excellence. One in particular, almost life-size, measuring seven feet from head to tail, cannot fail to excite admiration. The legs, mouth, and lower part of the body have been destroyed. But the haunches, back, shoulders and head are admirably modelled in a most truthful and life-like manner. This figure was probably originally coloured, for traces of violet coloured ochre were found on the neck and head (Plate IV). On a fallen block of stone close by the figure of a *Bison* about 20 inches long is carved in low relief. The deposits at the foot of the sculptured rocks appear to be distinctly of Palæolithic age.[2]

FIG. 52.—Deer sculptured in stone. Solutré.

A still more interesting discovery has since been made by M. Lalanne in the same valley. In a rock shelter near Laussel he found *four bas-reliefs of the human body* sculptured in limestone. The most remarkable is a cleverly carved figure, 18 inches high, of a woman holding in her uplifted right hand a buffalo horn. The left hand showing all five fingers rests on the front of the body. This figure is carved on a fallen piece of limestone sunk deeply into the floor deposit which from its composition is apparently of Aurignacian age. The head is in profile turned to the left, the chin resting upon the shoulder. The breasts are long and pendant. This figure was probably

[1] "La Grotte de la Mairie, Teyjat," *Rev. de l'Ecole d'Anthrop.* (1908), p. 171, Fig. 64.

[2] *L'Anthrop.*, XXII., p. 385, Figs. 3-6.

painted for there are still traces of red colouring matter on the body (Plate V). About two yards away on a smaller roughly triangular limestone block *another female figure* is similarly sculptured. It is however much less distinct and complete, the legs and right arm not being shown. The left arm is bent upwards. The head is in profile, but turned to the right. It is interesting from the representation of the hair by vertical parallel incisions, and two horizontal ones, for this recalls the head-dress of the statuette à la capuche found at Brassempouy. On another block of stone the *body of a man* is carved. The upper part of the head, the feet and the greater part of the arms have been broken off. The trunk and legs are excellently sculptured, and show a well-formed, vigorous body which the discoverers believe was originally represented in the act of drawing the bow, or throwing a spear. This figure is about sixteen inches long[1] (Plate VI).

A *female statuette*, recalling somewhat that discovered at Brassempouy, but more complete, comes from the cave of Baoussé-Roussé at Mentone. It is sculptured in a yellow slightly translucent steatite, and shows head, trunk, and thighs. The head is oval in shape, but no facial features are shown. The forehead is retreating, and a thick mass of hair falls on the neck much like that of some archaic Greek statues[2] (Fig. 53). Three or four other statuettes are said to have been found at Mentone, but great scepticism has been expressed regarding their authenticity and antiquity.[3]

At Willendorf, on the left bank of the Danube, about

[1] "Bas-Relief à Figuration Humaine de l'abri sous roche de Laussel" (Dordogne), par G. Lalanne, *L'Anthrop.*, XXII. (1911), p. 257, Fig. 1; XXIII. (1912), p. 129, Figs. 1, 2, 6, 7.

[2] "Statuette d'une Femme dans une grotte de Menton," par S. Reinach, *L'Anthrop.*, IX., p. 26, Plates I and II.

[3] Cf. *Bull. Soc. d'Anthrop.*, Paris, 1898, p. 152; 1902, p. 773.

PLATE V

Bas-relief in limestone. Laussel, Dordogne. 46 centimetres high.
(From *L'Anthropologie.*)

Bas-relief in stone. Laussel. 40 centimetres high. (From *L'Anthropologie.*)

twelve miles from Krems, Szombathy discovered in 1908, deep down in the loess, a *statuette of a woman* sculptured in limestone. The surrounding deposits point to its being of Aurignacian age. It was probably originally coloured, for there are traces of red paint upon it. It represents a woman of massive proportions, completely nude, and with no ornaments save simple bracelets. All parts of the body are shown except the feet, but no facial features are distinguishable. The hair is abundant, arranged in a series of rows of curls. "The artist who modelled this figurin,"

FIG. 53.—Stone statuette. Grimaldi caves, Mentone.

FIG. 54.—Statuette, stone. Willendorf, Lower Austria.

says M. Breuil, "has shown great cleverness, and an audacious realism pushed to an extreme almost horrible"[1] (Fig. 54).

Here may be mentioned the surprising discovery made by Count Bégouen in the autumn of 1912 of two figurins of *Bison in clay.* They were found in the inner parts, accessible only with the greatest difficulty, of the cave of Tuc d'Audoubert in Ariège. This fact, together with the presence of engravings of animals on the walls, and of flint

[1] Szombathy, "Die Aurignacien schichten im loess von Willendorf" in *Korrespondenzblatt Archiv f. Anthropologie*, XL. (1909), p. 85, Fig. 2; and cf. *L'Anthrop.*, XXI., p. 699, Fig. 1.

implements of Magdalenian character in the floor, give support to the astonishing conclusion that these works of art are of Palæolithic age. "The two statuettes," says the discoverer, "were resting against a piece of rock fallen from the roof in the middle of the chamber. On our arrival we saw them from behind, and they appeared to be fleeing before us along the sides of the rock. They were not exactly one behind the other, the hinder one was a little to the left, and its position was not at the same level as the other; it was raised a little on its hind legs, and appeared to be climbing the rock." The hind quarters of the lower one have been partly knocked off, and both figures show long cracks, evidently produced when the clay dried. The artistic character of these unique specimens may be judged by Count Bégouen's further observation that "there is in the ensemble of these statuettes a regard for nature, and for life, a realism and a technique which show that their makers possessed a real artistic conception".[1] One statuette (male) is 63 centimetres long, the other (female) 61 centimetres (Plate VII).

5. *ENGRAVING.*

Engraving reached its highest development and was most widely diffused in the Magdalenian period. In its simplest form engraving is seen on tools and weapons as awls, spearheads, and harpoons. The ornamentation is composed of dots and lines forming simple *geometric designs*.[2] One of the best examples of this style of ornamentation in the form of chevron design is seen on a four-sided

[1] "Les Statues d'Argile de la Caverne dur Tuc d'Audoubert (Ariège)," par le Comte Bégouen, *L'Anthropologie*, XXIII. (1912), p. 657, Figs. 2 and 3.

[2] Cf. *Reliq. Aquit.*, Plates B, XVIII, XXV, and XXVI; and Piette, *op. cit.*, Plates LXXVII and LXXIX.

Clay statuettes of Bison. Tuc d'Audoubert, Ariège. Length, 61 and 63 centimetres. (From *L'Anthropologie.*)

bone implement from Saint Marcel (Indre). All four sides are engraved. It looks like a double chisel, or it may possibly have been a tatooing instrument[1] (Fig. 55). Laugerie Basse has yielded several interesting examples, among the designs being chevrons and lozenges.[2] The *Circle* and *Spiral* are rare, but they are seen engraved on reindeer horn from the cave of Espélugues d'Arudy (Basses Pyrenées). Some of these are quite in relief, and may be regarded as a transition from carving to engraving[3] (Fig. 56).

FIG. 55.—Engraving on bone. 1. Marsoulas. 2. S. Marcel. (Much reduced.)

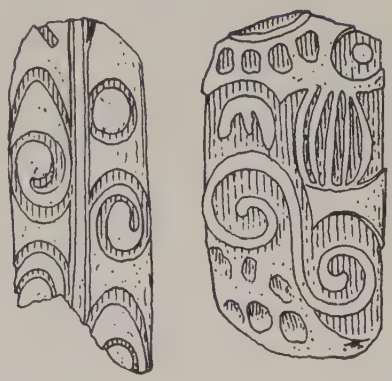


FIG. 56.—Spiral designs engraved on reindeer horn. Arudy (B. Pyrenées).

It was in the delineation of animal forms that the Palæolithic artist chiefly delighted and was most successful. This especially applies to the larger animals which he hunted, and on which his subsistence so much depended. These are so numerous and varied as to afford considerable knowledge of the fauna of the time.

[1] *L'Anthropologie*, XIII., p. 155, Fig. 5.

[2] Girod and Massenat, *Les Stations de l'Age du Renne dans les vallées de la Vézère et de la Corèze*, Plates VI, VII, IX, XXXI.

[3] *L'Anthrop.*, VI., Figs. 2, 5 (p. 4), 6 (p. 5).

The earliest discovery of this kind was made in 1834 by M. Bouillet, a notary of Charroux, in the Grotte de Chaffaud in the Charente Valley (Vienne). It is an engraving of *Deer* on bone (Fig. 57). This cave was not further explored until thirty years later, in 1865, when M. Gaillard

Fig. 57.—Hinds engraved on cannon-bone of reindeer. Chaffaud. (From *Cav. Reg. Cantab.*) (Two-thirds size.)

undertook its excavation. Among his discoveries was a small engraved stone slab on which are sketched in outline *two rows of horses*, one above the other. Only the heads and legs are drawn, the latter reaching to horizontal lines representing the ground[1] (Fig. 58). The extraordinary number of horses' bones found at Solutré show how numerous this animal must have been at that period, and the many engravings of it on bone and horn point to the same conclusion. The ox's vertebra with a seal in champlevé on one side, already referred to (see Fig. 20), has engraved on the opposite side a *horse's head*[2] (Fig. 59). The horse is often engraved on the so-called "Batons de Commande-

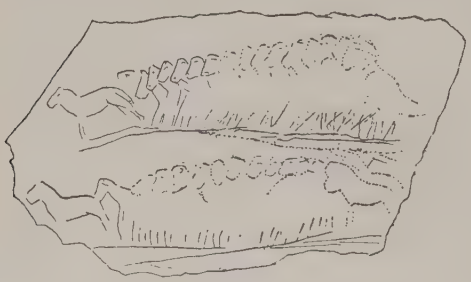


Fig. 58.—Engraving on stone. Chaffaud.

[1] *L'Anthrop.*, xiv., p. 180.

[2] Piette, *op. cit.*, Plate LXXXI, Fig. 2.

ment" made out of the antlers of the Reindeer or Stag, by cutting off the tines, and boring one or more holes through the part remaining. This fanciful name was given to these objects because it was imagined that they were sceptres, and used as insignia of office. Others have suggested that they served a much less dignified, if more useful, purpose of fastening the dress.[1] There does not however appear to be any evidence of similar objects being used in this way by the Eskimo as some people have assumed. Another view makes them arrow-straighteners, but considering it is more than doubtful if these prehistoric hunters were acquainted with the bow, it cannot be readily accepted. The fact that they are so often ornamented with carvings and engravings strongly supports the view that they were intended for no ordinary purpose. If the Eskimo are to be appealed to for light on the question, the carrying of wands of ivory by important persons among these people would lend support to the view that the term "Baton de Commandement" is not an inappropriate one.[2] Their ornamentation rather suggests some connexion with magical or religious ceremonies, and the frequent presence of

Fig. 59.—Horse's head engraved on a vertebra. Brassempouy.

[1] "A quoi serviraient les batons de commandement," par O. Schoetensack in *L'Anthrop.*, XII., p. 190.

[2] Cf. Capt. Lyon's *Private Journal* (1824), p. 227.

animal forms not unnaturally connects them with totemism.[1] Several of these batons with engravings of horses upon them were among the early discoveries of Lartet and Christy at the shelter of La Madeleine. One of them is especially striking for it is engraved on both sides with

Fig. 60.—Engraving on a Baton de Commandement. La Madeleine.

figures of *horses following one another*, four on one side, three on the other. The hole in this specimen was evidently bored after the engraving was completed, for it has removed one of the heads of the animals[2] (Fig. 60). Another baton from La Madeleine with engravings of a *horse* and two

Fig. 61.—Engravings on a Baton de Commandement. Cavern Mège, Teyjat.

fish has two holes, and others have been found with three or four. One of the most interesting and finely engraved batons was found in a cave known as Mège at Teyjat

[1] Cf. "L'Art et la Magie à propos des peintures et des gravures de l'Age du Renne," par S. Reinach in *L'Anthropologie*, XIV., p. 357. For an interesting criticism of this view by M. G. H. Luquet, cf. *Revue Philosophique* (1913), pp. 471 ff.

[2] *Reliq. Aquit.*, Plates B, XXX and XXXI.

(Dordogne). On it with other figures is a fine engraving of a horse at the trot[1] (Fig. 61).

One of the best and most complete engravings of the *horse* was discovered in a very different district, viz. in the cave of Kesserloch, in the commune of Thayngen, near Lake Constance. It is executed on horn and is particularly interesting because the mane and hair of the body are indicated by series of parallel short lines[2] (Fig. 62). The only engraving yet discovered in Britain is that of a *horse's head* on a rib. It was found by Prof. Boyd Dawkins in the Robin Hood Cave, at Cresswell Craggs in Derbyshire.

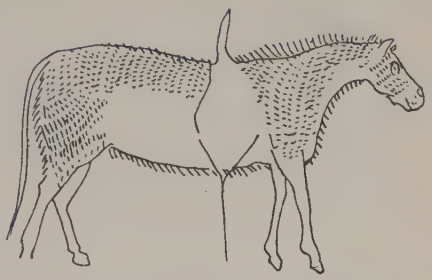


Fig. 62.—Engraving in reindeer horn. Kesserloch, Thayngen.

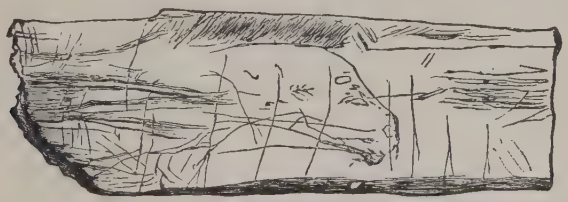


Fig. 63.—Horse engraved on bone. Robin Hood Cave, Cresswell Craggs, Derbyshire.

It has an erect mane recalling that of the Thayngen specimen; but it is much inferior to it artistically, and to

[1] *Rev. de l'École d'Anthrop.* (1909), p. 63, Fig. 4. On this baton also appear the head of a hind, serpents, swans, and three very curious anthropomorphous figures termed *diablotins* by the discoverers, and concerning which cf. S. Reinach in *Mythes, Cultes et Religions*, IV., p. 363, Fig. 1.

[2] *Mitt. Antiq. Gesellschaft Zurich*, Band XIX, Heft 1, (1875), Taf. VIII., Fig. 67.

the examples from the French caves[1] (Fig. 63). M. Piette believed that certain lines in the engravings of horses' heads on bone found at Mas d'Azil were intended to represent *bridles*,[2] a view which has not been generally accepted (Fig. 64).

Naturally engravings of extinct animals, and of those no longer living in the region, excite the greatest interest. Hence the attention bestowed on one of Lartet and Christy's earliest discoveries at La Madeleine.[3] On a piece of ivory is admirably engraved a *Mammoth* (Elephas primigenius). The discovery of mammoths completely preserved in the ice of Siberia has made it possible to fully verify the truthfulness of the drawing, and comparison

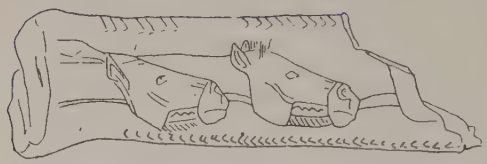


Fig. 64.—Engraving on bone. Bridled horses. Mas d'Azil.

shows the head with its protuberant forehead, the body with its hairy covering and huge curved tusks to be accurately delineated. During the last few years many engravings of this animal have been discovered on the walls of caves, as will be seen later on. This specimen is also of interest from its being executed on ivory which was much less often used for engraving than bone and horn (Fig. 65).

One of the most ancient denizens of the caves was the *Cave Bear* (Ursus spelæus). This animal is realistically engraved in outline on a schist pebble from Massat, near

[1] *Early Man in Britain*, Fig. 53, p. 185.
[2] Piette, *op. cit.*, Plate LXI, Figs. 6 and 7.
[3] *Rel. Aquit.*, Plate B, XXVIII.

FIG. 65.—Mammoth engraved in ivory. La Madeleine.

Toulouse[1] (Fig. 66). Another example, also engraved on a stone, was found in the cave of Gourdan (H. Garonne).[2] In the last-named cave, one of the richest in specimens of Palæolithic art, on a piece of stalagmite, was engraved the

Fig. 66.—Bear engraved on stone. Massat, Ariège.

Fig. 67.—Rhinoceros head engraved on stalagmite. Gourdan.

head of the extinct *Woolly-haired Rhinoceros* (Rhinoceros tichorhinus)[3] (Fig. 67). Engravings of this animal, but much more crudely executed, have been found at Lourdes,

Fig. 68.—Rhinoceros engraved on a schist pebble. Tribolite cave, Arcy-sur-Cure.

and in the Tribolite cave at Arcy-sur-Cure, in Yonne[4] (Fig. 68).

[1] *Musée Préhistorique*, 210. [2] *L'Anthrop.*, xv., Fig. 45, p. 156.
[3] *Ibid.*, Fig. 27, p. 129. [4] *La Caverne de Font de Gaume*, p. 147.

Palæolithic art found its highest expression in the drawing of two animals which no doubt existed in enormous numbers in South-west France during the later period of the Palæolithic age; but which now live only in very distant parts of the world. These are the Reindeer (*Cervus tarandus*) and the Bison (*Bison priscus*). The *Reindeer*, especially, must have played a most important part in the lives of these prehistoric hunters, and have been of service to them in a multitude of ways. In addition to food and clothing, its antlers supplied the material for the manufacture for implements and weapons, and for the manifesta-

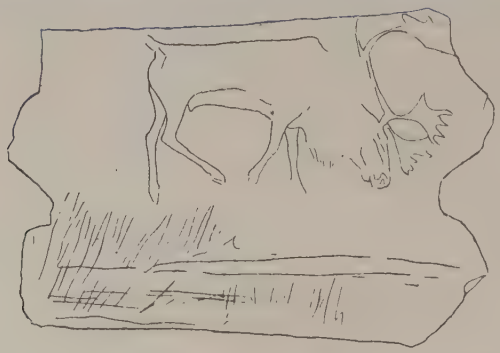


Fig. 69.—Engraving on reindeer antler. Kesserloch cave, Thayngen, Switzerland.

tion of that art in which they delighted and showed themselves so proficient. Hence we find engravings of this animal in all kinds of positions and attitudes. The sympathetic touch of the prehistoric artist is better seen in the drawing of the Reindeer than of any other animal. Represented in a tranquil attitude it is the subject of an engraving which, with some reason, has been described as a *chef d'œuvre* of Palæolithic art. It is all the more remarkable from the fact that the engraving although covering both sides of a piece of an antler, yet forms one continuous picture. On one side is the Reindeer, most realistically

drawn, browsing as it walks along; on the other is the adjacent scene including water and herbage. This specimen was discovered in 1874 in the cave, already mentioned, of Kesserloch, at Thayngen, in Switzerland[1] (Fig. 69). An

Fig. 70.—Reindeer engraved on schist. Laugerie Basse.

engraving on schist from Laugerie Basse shows the male animal following a female, a piece often wrongly described as "le Combat de Rennes"[2] (Fig. 70). The same station supplies a charming little sketch, also on stone, of a reindeer looking back[3] (Fig. 71). It is rather surprising to find how often the reindeer is engraved on stone. In contrast to the quiet scene at Thayngen is a striking and vigorous drawing on schist of the animal at full gallop (Fig. 73). This work, which was found at Saint Marcel (Indre), has called forth the admiration of the artist to whose clever pencil we owe so

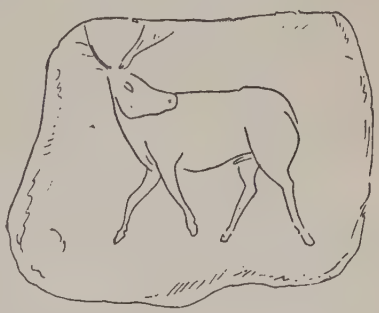


Fig. 71.—Reindeer engraved on stone. Laugerie Basse.

[1] *Mitt. der Antiquarische Gesellschaft Zurich* (1851), Band XIX, Heft 1, Taf. VIII, Fig. 68; *Reliq. Aquit.*, Fig. 98, p. 229.

[2] *L'Anthropologie*, XVIII., Fig. 10, p. 25.

[3] *La Pasiega, à Puente Viesgo* (*Santander*), 1913, Fig. 24, p. 53.

much in the interpretation of Palæolithic art. "Le tracé entaillé dans cette roche dure,"[1] says Abbé Breuil, "avec un vigueur et une sureté de main incomparable: la hardiesse de la conception ne le cède rien à celle de l'execution, car l'allure du renne figuré par l'artiste est fort bien saisie, et les détails en sont supérieurement interpretés." Another most interesting representation of the Reindeer, also on stone, comes from Gourdan. The engraving, often called the *Dying Reindeer*, shows the animal in an attitude of great distress, evidently wounded or at the point of death. This drawing shows well the power of the artist to seize, with a few lines, the essentials of expression[2] (Fig. 72). Realistic engravings on stone have been discovered in several other cases, as for example at Limeuil[3] (Dordogne) and Bruniquel.[4] One of the latter from Monastruc is engraved on both sides of a pebble, the body being on one, the legs on the other.[5]

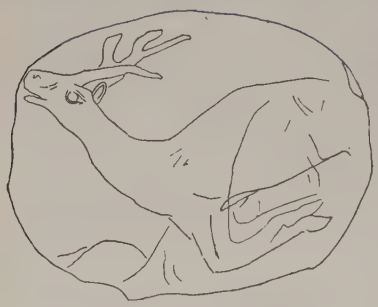


Fig. 72.—Dying reindeer, stone. Gourdan.

A composition on reindeer horn from Lorthet (H. Pyrenées) which has often been admired and described as representing reindeer, contains really an engraving of the *Great Stag* (Cervus elaphus), and the artist has shown his skill by drawing the animal with its head turned back in a very natural manner (Fig. 75). Unfortunately the other figures of deer have been largely destroyed. Sir Ray Lankester has suggested a restoration which adds a charm to the

[1] *L'Anthropologie*, XIII., Fig. 8, p. 159.
[2] *Ibid.*, XV., Fig. 44, p. 155.
[3] *La Cav. de F. de Gaume*, Fig. 145.
[4] *Ibid.*, Fig. 155. [5] *Ibid.*, Fig. 178.

FIG. 73.—Reindeer on schist. S. Marcel. (Natural size.)

FIG. 74.—Engraving on bone from Raymouden. Musk ox and ? human figures (From *Cav. Font de Gaume.*)

picture (Fig. 76). This sketch is also interesting for excellent drawings of fish, apparently salmon. Above the neck of the stag are two quadrilateral designs which M. Piette

Fig. 75.—Engraving on an antler. Lorthet.

ventured to suggest were the signature of the artist. This clever sketch is all the more remarkable since it is engraved all round part of an antler. This and other similarly

Fig. 76.—Suggested restoration of the Lorthet engraving.

executed work, such as the reindeer of Thayngen already described, fully justify M. Piette's remark that "Les hommes des temps glyptiques possédaient merveilleusement la faculté de se representer un objet gravé dont ils

Fig. 77.—A pendant or amulet of horn with a glutton engraved on it. La Madeleine.

Fig. 78.—Engravings of Cervus elaphus.

(1) Mège Cavern, Teyjat. (2) Gourdan. (3) Lorthet. (4) Les Eyzies. (5) Baton de Commandement, Laugerie Haute. (From *Cav. Font de Gaume.*)

ne voyaient qu'une partie, parcequ'il etait dessiné sur une surface tournante dont un seul côte etait dans le champ de leur vue."[1] A fine study of Stags' heads arranged in a vertical series is seen engraved on a baton from Laugerie Haute, and another of their heads seen *en face* (a method of representation very uncommon in Palæolithic art) from the cave Mège at Teyjat[2] (Fig. 78). M. Piette also interpreted as the artist's signature designs (which he compared to a

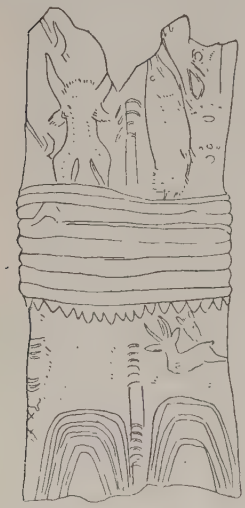


Fig. 79.—Engraving round an antler, unrolled. Gourdan.

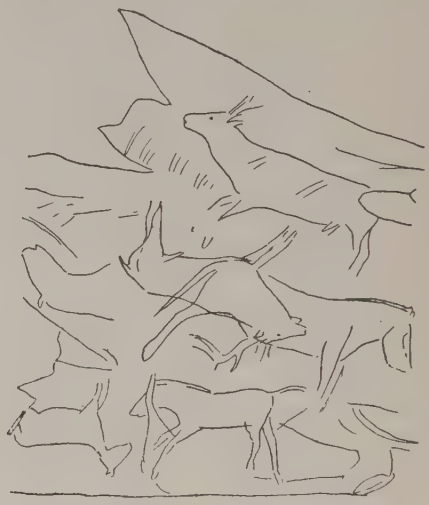


Fig. 80.—Engravings—rough sketches. Lorthet.

count's coronet) on a curiously complicated scheme ornamenting a baton found at Gourdan. This engraving is another example of work carried out on a rounded surface. When unrolled it is seen to be made up of bovine and deer-like animals, a fish, concentric semicircles, horizontal parallel lines, and zig-zags[3] (Fig. 79). Sketches of deer and horses arranged anyhow are seen on a piece of shoulder-blade from

[1] Piette, *op. cit.*, Plate XXXIX, Explication.
[2] *Caverne de Font de Gaume*, Fig. 169, p. 188.
[3] *L'Anthrop.*, xv., Fig. 56, p. 163.

Lorthet (Fig. 80). Possibly this and similar unfinished work were of the nature of trial sketches such as a modern artist makes in his sketch-book.[1] That rich source of Palæolithic art, the cave of Gourdan, also gives us a sprightly sketch of a stag and several *Chamois* heads engraved on both sides of a piece of reindeer horn[2] (Fig. 81),

Fig. 81.—Chamois engraved on horn. Gourdan.

and a head of the *Saiga antelope* (Saiga tartarica) engraved on a rib[3] (Fig. 82). An equally spirited drawing on horn of the head of an *Ibex* comes from Laugerie Basse[4] (Fig. 83). It is singular that although it figures

Fig. 82.—Saiga antelope engraved on a rib. Gourdan.

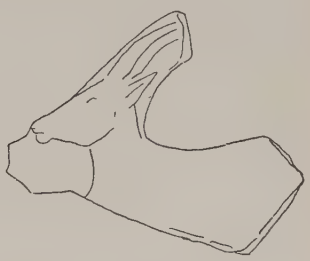


Fig. 83.—Head of ibex engraved on horn. Laugerie Basse.

so often, as we shall see later, on the walls of caves, not many engravings of the *bison* on bone or horn have been found in the floor deposits. A good drawing of a bison's head engraved on bone was found at Laugerie Basse,[5] and the same station supplies a full-length engraving on

[1] *L'Anthrop.*, xv., Fig. 64, p. 171.
[2] Piette, *op. cit.*, Plate LXXXIII, Figs. 4 and 4*a*.
[3] *L'Anthrop.*, xv., Fig. 34, p. 150.
[4] *Reliq. Aquit.*, Plate B, II, Fig. 6.
[5] *L'Anthrop.*, xviii., p. 23.

the opposite side of the piece of schist engraved with reindeer (the so-called "Combat de Rennes").[1] An excellent engraving of this animal on the same material comes from Bruniquel[2] (Fig. 84). The cavern of Mas d'Azil has given a finely engraved life-like drawing of the head, also on stone[3] (Fig. 85). A rare example of an animal now living only in northern latitudes is the *Glutton* (Gulo borealis). This specimen, found at La Madeleine, is further interesting because the engraving is executed on a small elongated piece of horn with a hole at one end, pointing to

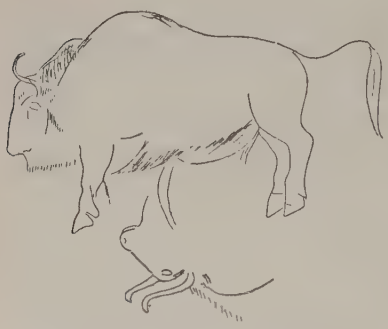


Fig. 84.—Bison engraved on schist. Bruniquel.

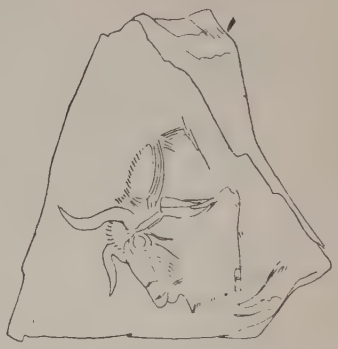


Fig. 85.—Bison's head engraved on stone. Mas d'Azil.

its having been used as a pendant or *amulet*[4] (Fig. 77). This conclusion is supported by the discovery of other very similar objects. At the cave of Saint Marcel (Indre) two such "pendants" made of bone were recovered. One of them has engraved on one side the body of an animal at the gallop, and on the reverse an indeterminate design which possibly represents a sledge (Fig. 86). The other is engraved on one side with three series of concentric circles,

[1] *L'Anthrop.*, XVIII., p. 35, Fig. 16.
[2] *Cav. Font de Gaume*, Fig. 207, p. 218.
[3] *L'Anthrop.*, V., Fig. 14, p. 143.
[4] *Reliq. Aquit.*, Fig. 80, p. 209.

and a herring-bone pattern[1] (Fig. 87). A flat piece of bone from Raymonden (Dordogne) has engraved on it with other figures the head of an animal which has been regarded as the *Musk Ox* (Ovibos moschatus)[2] (Fig. 74).

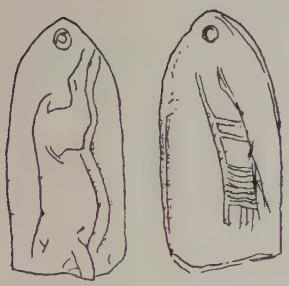


Fig. 86.—Engraved pendant or amulet, bone. S. Marcel.

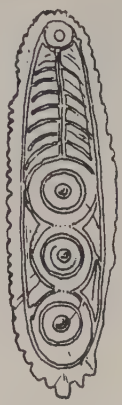


Fig. 87.—Engraved bone pendant. S. Marcel.

Engravings of carnivorous animals are not very numerous, and a good deal of uncertainty surrounds those described as such. An animal sketched on schist at Gourdan gives a fair representation of a *Wolf*.[3] The

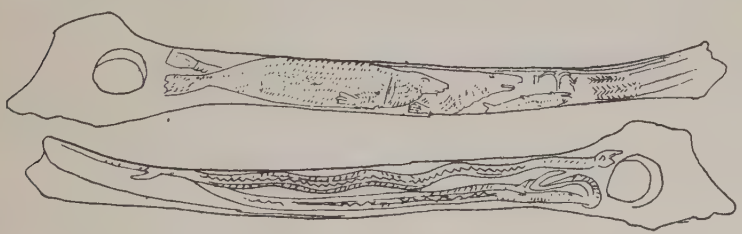


Fig. 88.—Seal engraved on a baton. Montgaudier.

carnivorous animal most clearly shown is the *Seal*, a good example of which is seen on a bear's tooth from Duruthy

[1] *L'Anthrop.*, XIII., Figs. 3 and 4, p. 152.
[2] *Cav. Font de Gaume*, Fig. 211, p. 222.
[3] *L'Anthrop.*, XV., Fig. 37, p. 151.

Cave, Sordes (Landes).[1] Admirable drawings of this animal are engraved on a baton from Montgaudier (Charente) (Fig. 88). A fish is drawn on the same side; on the other are eels or serpents extending nearly the whole length of the baton.[2] Several examples of the seal engraved on bone come from the cave Mège at Teyjat (Dordogne). In one case the animal is represented in the attitude it assumes on coming out of the water.[3] Engravings of *Fish* are not uncommon, and examples have already been incidentally referred to. One of the bear's teeth, forming a necklace discovered at Duruthy, has a fish (? pike) engraved on it,[4] and several examples were found at Laugerie Basse, one of which is drawn on bone in some detail.[5]

Engravings of *Birds* are not common, and in some instances the forms represented are anything but distinctive. Peccadeau de L'Isle discovered at Monastruc an engraving on stone of a *Crane*. A *Swan* engraved on stone, and a *Duck* deeply incised on horn, were among the numerous objects obtained by M. Piette at Gourdan [6] (Fig. 89).

Engravings of anything which can fairly be interpreted as representing *plant forms* are rare, and some of those which have been generally accepted as such are open to scepticism. They are mostly representations of *leaf stems* of a simple character. Three such stems, possibly of the pine, are drawn on a stone at Gourdan,[7] and an unmis-

[1] *Reliq. Aquit.*, Fig. 84, p. 223.

[2] *La France Prêhistorique*, Fig. 41, p. 82.

[3] *Rev. de l'Ecole d'Anthrop.* (1906), Fig. 71, p. 209.

[4] Girod et Massenat, *Les Stations de l'Age du Renne*, Plate XXXI, Fig. 1.

[5] *Reliq. Aquit.*, Fig. 86, p. 225.

[6] For an account of carvings and engravings of Birds in Palæolithic Art, consult *Les Cavernes de la Region Cantabrique*, chap. XVI.

[7] *L'Anthrop.*, XV., Fig. 40, p. 153.

takable *leaf* appears also engraved on stone from the same station.[1] Another very simple stem, also on stone, comes from Teyjat.[2] Perhaps the best example of a stem with its leaves is an engraving on bone discovered in the Trilobite cave, Arcy-sur-Cure.[3] Other examples on bone have been obtained at Le Veyrier, near Geneva,[4] Laugerie Basse,[5] and Lourdes,[6] and a little engraving on the same material at Mas d'Azil has been described as a plant with its root[7] (Fig. 90).

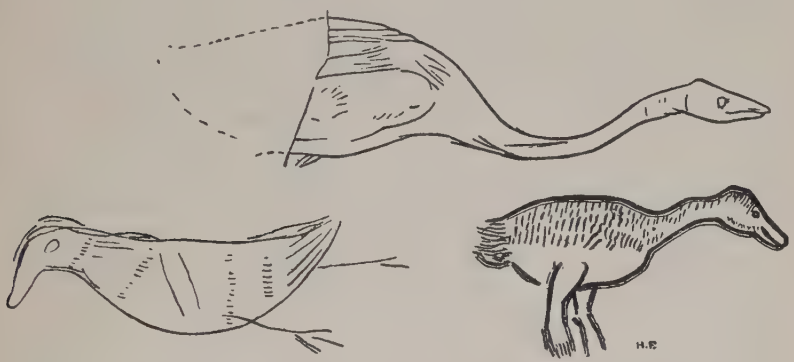


FIG. 89.—Engravings of birds.—Swan on stone (Gourdan). Duck on stone (Lourdes). Duck on horn (Gourdan). (From *Cav. Reg. Cantabrique.*) (Two-thirds size.)

The *Human Figure* is rarely found engraved on bone, horn, or ivory, and the few examples known bear no comparison with the engravings of animals we have just been considering. In fact for the most part they are grotesque, and can only be described as anthropomorphs. Many of these are found on the walls of caves, and will

[1] *L'Anthrop.*, v., p. 153.

[2] *Rev. de l'Ecole d'Anthrop.* (1908), p. 215.

[3] *L'Anthrop.*, XII., p. 124.

[4] *Rev. de l'Ecole d'Anthrop.* (1898), p. 138.

[5] Girod et Massenat, *Les Stations de l'Age du Renne*, Plate XXVII, Fig. 2; Plate VII, Fig. 5.

[6] Piette, *op. cit.*, Plate XXIV, Fig. 4.

[7] *Ibid.*, Plate LXIII, Fig. 4.

be referred to later on : here we shall refer only to those on bone or horn in the floor deposits. In some instances it is difficult to be sure that human beings are intended. For example, rows of figures on bone from Raymonden [1] (see Fig. 74), and on horn from Gourdan, have by some been re-

Fig. 90.—Plant designs engraved on horn. 1. Trilobite cave. 2. Le Veyrier. 3, 4. Laugerie Basse. 5. Mas d'Azil.

garded as penguins ![2] Acurious anthropomorphic figure more ape than manlike, engraved on a piece of bone, was among M. Piette's discoveries at Mas d'Azil [3] (Fig. 91). Rivière

[1] *Cav. de Font de Gaume*, Fig. 211, p. 222.
[2] Piette, *op. cit.*, Plate LXXXIII, Fig. 7.
[3] *Ibid.*, Plate XLIII, Fig. 2*b*.

has ventured to describe as an engraving of a woman an almost equally crude production on bone from Cro-Magnon (Dordogne)[1] (Fig. 93). The human character is more evident in an engraving on a baton from Gourdan.[2] That the human face was intended to be delineated seems evident in a very crude production discovered in the cave of Rochebertier or Placard (Charente)[3] (Fig. 92). A plausible explanation has been offered of the ape-like heads of these and other anthropomorphic figures, viz. that they represent masks such as are often worn by existing primitive peoples in ceremonial dances.[4]

Fig. 91.—Engraving on bone. Mas d'Azil.

Fig. 92.—Engraving on horn. Rochebertier.

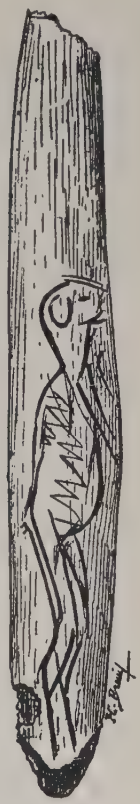


Fig. 93.—Engraving on a reindeer rib. Cro-Magnon. (Natural size.) (From *Cav. d'Altamira.*)

Few engravings by these prehistoric artists can be said to form a picture, or represent a scene. Those which do, almost all come from the Dordogne district, being

[1] *Cav. d'Altamira*, p. 125. [2] Piette, *op. cit.*, Plate XXVII, Fig. 7.

[3] *Musée Préhistorique*, Fig. 199.

[4] "Gravures du Mas d'Azil," par E. Piette in *Bull. Soc. d'Anthrop.*, Paris (1902), p. 772, Fig. 1. On this subject, cf. a very interesting critical article, "Les Masques quaternaires," by W. Deonna in *L'Anthropologie*, XXV. (1914), pp. 107 *seq.*

apparently absent from the Pyrenean region, though the quality of the engraving from the latter is by no means inferior. It is in these few simple pictures that the human body is best delineated. One of the clearest and most evident representations of a human being was among the early discoveries at La Madeleine. It is included in a

Fig. 94.—Engraving on reindeer horn, from La Madeleine. (Natural size.)

scene engraved on horn. The human figure carrying an implement or weapon on the shoulder stands between two horses' heads. Behind is a long eel-like animal, extending below and above which are three series of parallel horizontal lines which may well have some significance[1] (Fig. 94). Laugerie Basse has given two of the best-known

Fig. 95.—Engraving on horn, "Chasse à l'aurochs". Laugerie Basse.

engravings of the human figure. One of these, often described as the *chasse à l'aurochs*, represents a man, apparently armed with some weapon, lying at full length behind a bison, and strikingly exemplifies how much more faithfully and forcibly the primitive artist could portray the animal than the human figure. Although the attitude and

[1] *Reliq. Aquit.*, Plate B, II, Fig. 8*a*.

position of the man are certainly problematical, the sketch is clearly open to the interpretation that it is intended to represent a hunter stealthily pursuing his quarry[1] (Fig. 95). The other example from this station is remarkable and interesting, though, unfortunately, the piece of horn on which it was executed has been broken so as to leave only part of the original design. It represents a woman lying on her back under a reindeer. The body is naked, and rows of

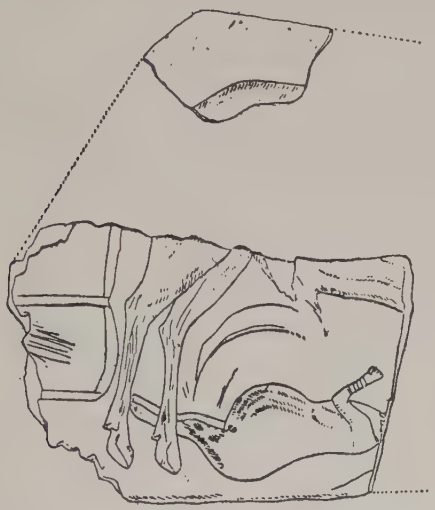


Fig. 96.—Engraving on horn. Laugerie Basse.

small parallel lines upon it have been taken to show that it was very hairy, and pointing to the Palæolithic cave-dwellers having been a more hairy race than their present successors. Lines on the wrist of the uplifted arm have been supposed to represent bracelets.[2] On the reverse side the head and shoulders of a horse are engraved (Fig. 96).

Reference must not be omitted to engravings of the *human arm and hand* on harpoons of reindeer horn ob-

[1] *Musée Préhistorique*, Fig. 203. [2] *L'Anthropologie*, v., Plate I.

tained at La Madeleine.[1] Only four fingers are shown (Fig. 97). A different interpretation of the meaning of these engravings has been offered, viz. that they represent large gloves such as are worn by the Eskimo. This

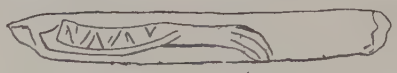


Fig. 97.—Human arm engraved on horn. La Madeleine.

view receives some support from similar designs engraved on bears' teeth from the Duruthy cave at Sordes (Landes).[2]

[1] *Reliq. Aquit.*, B, Plate XIX, Fig. 4; Plate XVII, Fig. 6; Plate X, Fig. 3.

[2] *Materiaux pour l'Histoire primitive de l'Homme*, IX., p. 141.

CHAPTER IV.

MURAL DECORATION OF CAVES.

1. *INTRODUCTORY.*

These prehistoric engravings soon after their first discovery called to mind the engraved work seen on the tools and weapons of the Eskimo in which the reindeer often figures. It was also known, but had not then attracted much attention, or been very carefully studied, that some primitive hunting tribes like the Bushmen of South Africa, and the Australian aborigines, were in the habit of engraving and painting figures on rock surfaces, and on the walls of caves, and that these drawings generally represented those animals of the chase which play such an important part in the lives of these peoples. This being so, analogy would suggest that people in the past living a very similar life, might be expected to produce similar artistic work, especially when it was known that they were adepts in the art of engraving. Curiously enough it never seems to have occurred to the explorers of the French caves to look for, or even to expect to find, any evidence on their walls of similar pictorial decoration from the hands of Palæolithic man. Not only so, but some of the most expert investigators were quite incredulous as to the existence of such paintings when first discovered. A cave near Santander, in north-west Spain, now known to fame as *Altamira à Santilane*, was explored in the year 1879 by M. S. de

Santuola, who, in the course of his exploration, noticed paintings on the walls and roof. He was so impressed with the discovery that he not only carefully examined these pictorial designs, but published an illustrated account of them in the following year.[1] His publication was received with almost complete incredulity so far as the antiquity of the paintings was concerned.[2] As a result of this cold and sceptical reception, M. de Santuola's discovery was almost forgotten for years, until in fact 1895. In that year M. Rivière discovered on the walls of a cave near the village of La Mouthe, in the commune of Tayac, not far from the famous grotto of Les Eyzies, in Dordogne, engravings of animals, some partly coloured, among which were the bison, horse, reindeer, and mammoth. The last-named animal was sufficiently well drawn to leave little doubt that the artist had seen it alive. This fact and the presence in the floor deposits of implements of stone and bone pointing to Palæolithic times, showed that here was a cave with drawings on the walls about the antiquity of which there could not be much doubt; in other words, they were the work of the ancient hunters who lived in the Dordogne valley during the Old Stone Age. Rivière's discovery not unnaturally recalled attention to Altamira, which was soon again visited, and its paintings carefully re-examined, resulting ultimately in the general conviction that they were executed during the same age.

The significance of these wall drawings being now appreciated, careful examination of other caves was made with a view to discovering similar engravings and paintings on their walls. Success beyond expectation has rewarded

[1] *Breves apuntes solve algunos objectos préhistoricos de la provincia de Santander*, Madrid (1880).

[2] M. Piette was a marked exception, for he expressed his belief in their Palæolithic age when first informed by M. Santuola of their character: cf. *Caverne de Font de Gaume*, p. 1 *n.*

these explorations. Numbers of caves with walls thus ornamented are now known. Roughly speaking, they are situated in three districts, the Dordogne, the northern flank

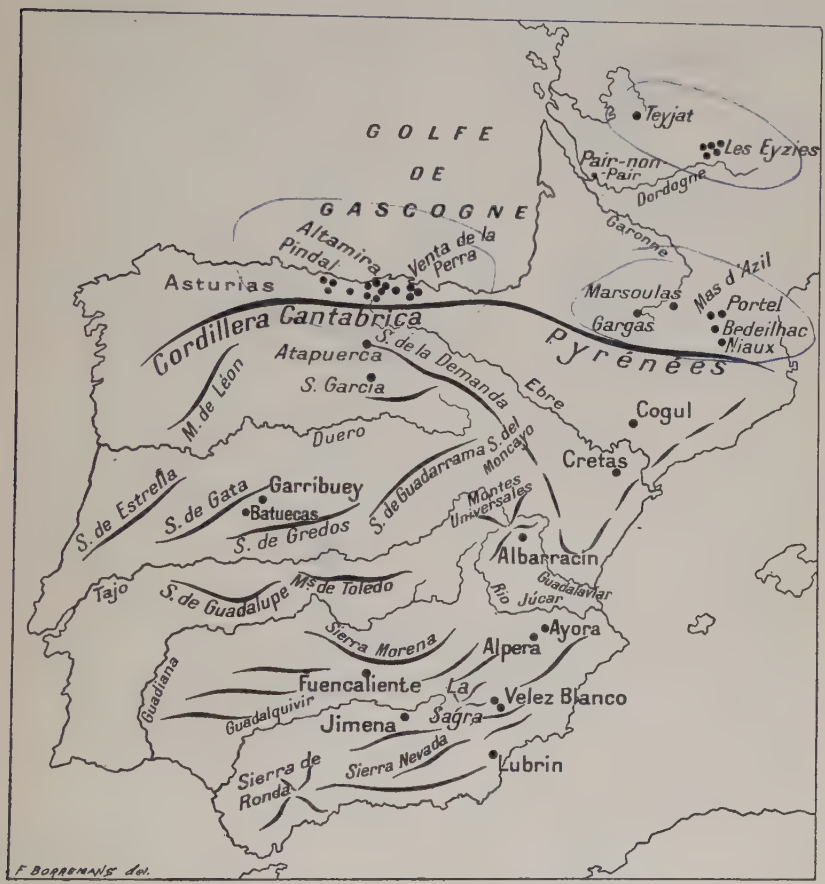


FIG. 98.—Map of South-West France and Spain, showing the sites of cave and rock paintings and engravings. (From *L'Anthropologie.*)

of the Pyrenees, south of Toulouse, and in north-west Spain. During the last few years, however, so many discoveries of rock engravings and paintings have been made in Spain, over such a wide area, that it is no longer

possible to speak of the north-west of that country as being peculiar in possessing these interesting works of art. Although, therefore, the areas in which this mural decoration is found are gradually extending, it will be convenient, and tend to lucidity, if we consider the subject under the three districts mentioned above (Fig. 98).

2. *THE DORDOGNE REGION.*

The most important caves in this region are La Mouthe, Combarelles, Font de Gaume, Teyjat, Bernifal and La Grèze. With them may be associated Pair-non-Pair in the Gironde.

La Mouthe.—As already mentioned this cave was first explored by Rivière in 1895, and two years later he published a detailed description of his observations.[1] He suggested a classification of the drawings into these groups : (*a*) Engravings with lines deeply cut ; (*b*) Engravings with much shallower lines, the design being indicated rather by a series of striations ; (*c*) The outline only is engraved, the body being coloured in with ochre of a red-brown tint. Black colouring matter was also used which appears from Moissan's analysis to be oxide of manganese.[2] M. Breuil subsequently visited the cave, confirmed Rivière's observations, and made copies of the drawings. Amongst the animals represented are the bison, horse, reindeer, and mammoth. All are drawn in profile. Some are crude and ill-proportioned, but there is no difficulty in recognizing the animal intended. One of the best is of a reindeer, the head and neck being shaded to show the hair (Fig. 99). Of the inanimate designs one is a rectangular drawing, and

[1] *Bull. Soc. d'Anthrop.*, Paris (1897), p. 302, Figs. 1-4 ; cf. also *ibid.*, 1901 and 1903, p. 191, and *Revue Scientifique* (1901), p. 492.

[2] *Bull. Soc. d'Anthrop.*, Paris (1903), p. 193.

is supposed to represent a hut ; it belongs in fact to that *tectiform* class of designs found, as we shall see, in so many of the caves. This cave is about two hundred and seventy yards long. The drawings must all have been executed by artificial light, for the first to be noticed is no less than 120 yards from the entrance : they are thence distributed over the walls for a distance of about forty-five yards.

FIG. 99.—*La Mouthe.* Engraving of reindeer on wall of the cave. (From *Cav. d'Altamira.*)

Combarelles.—In this cave, about two miles from Les Eyzies, the drawings are even more remote from the light of day, for none are met with until the cave—which is of the nature of a long narrow gallery—is penetrated for a distance of 150 yards. Engraved figures of animals, varying in size from a few inches to over a yard in length, extend for a distance of 125 yards, nearly in fact to the end of the cave. The only use of colour is to emphasize occasionally the engraved lines with a black band. More than a hundred figures have been counted. Considerably more than half of these are of animals with the entire body shown, the rest are of heads only. Among the former are the bison, horse, reindeer, bear (Fig. 100), and mammoth ; the latter include the wolf (Fig. 101) but are princi-

pally of the horse. How much the discoverers, MM. Capitan and Breuil, were impressed may be inferred from their remark that "certaines de ces figures sont d'une netteté incroyable, tout à fait saissante . . . les dessins

Fig. 100.—*Combarelles.* Wall engraving of bear.

Fig. 101.—*Combarelles.* Engraving of wolf.

presentent les caractères de style et la beauté d'exécution des productions classiques de l'age du Renne ".[1] No less than fourteen of these drawings are of the mammoth (Fig.

Fig. 102.—*Combarelles.* Wall engraving.

102). These are drawn with "an astonishing accuracy, the flanks are always covered with hair, falling very low, the trunk is either directed downwards or thrown back,

[1] *Bull. Soc. d'Anthrop.*, Paris (1902), p. 527, Figs. 4, 5, 6, 7.

the tusks are long and very curved, the forehead high and the eye small".[1] There are also engravings of *anthropomorphic* heads on the walls of this cave (Fig. 103). About

FIG. 103.—*Combarelles.* Wall engravings.

a mile from Combarelles, and nearer Les Eyzies, is situated the finest decorated cave yet discovered, *Font de Gaume.*

FIG. 104.—*Font de Gaume.* Mammoths finely engraved.
(From *Cav. Font de Gaume.*)

Font de Gaume.—It is essentially a narrow corridor about one hundred and fifty yards long (Fig. 105). About half-way through it narrows almost to closure, picturesquely

[1] *La Caverne d'Altamira* (1906), p. 23.

FIG. 105.—*Font de Gaume.* Plan of the cave. Length, 150 metres.
(1) Vestibule. (7) Rubicon. (6) First lateral gallery. (8) Principal gallery. (13) Second lateral gallery. (11) Salle des Petits Bisons. (12) Diverticulum. (From *Cav. Font de Gaume.*)

termed the Rubicon by the explorers, MM. Capitan, Breuil, and Peyrony. Beyond this the cave takes the form of a straight gallery (the principal gallery), terminating in a very narrow extremity (the diverticulum). About half-way down, the principal gallery gives off on the right a long lateral

FIG. 106.—*Font de Gaume.* Polychromes, Salle des Petits Bisons. (From *Cav. Font de Gaume.*)

gallery, and near the end, on the left, is a small chamber (salle des petits bisons). There are scores of figures of animals on the walls, including those of the bison, horse, reindeer, mammoth (Fig. 104), bear, wolf, and rhinoceros. They are chiefly found in the principal gallery, on the whole length of its left side (i.e. going in), a distance of 60 yards,

in the diverticulum, on part of its right side, in the lateral gallery, and in the little salle des petits bisons, so called because no less than a dozen polychromes of that animal are seen on its walls (Fig. 106). This little chamber also contains the only representation of man in the cave, viz. a grotesque engraving of the human face (Fig. 107). On the walls of the principal gallery the figures are arranged in groups forming frescoes. In one place there are at least five mammoths (Plate VIII), in another nine bison forgather, in a third a feline animal appears to be about to attack a number of horses (Fig. 108). It is, however, the large number of polychrome paintings of the bison which especially characterizes the mural decoration of this cave. The colours employed are red, brown, and black, the first predominating. The outlines of many of these, as well as of the mammoths and reindeer, were also engraved: often

Fig. 107. — *Font de Gaume.* Engraving on wall. (From *Cav. Font de Gaume.*)

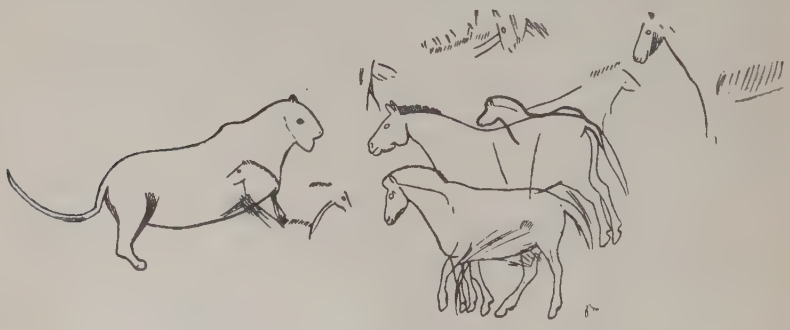
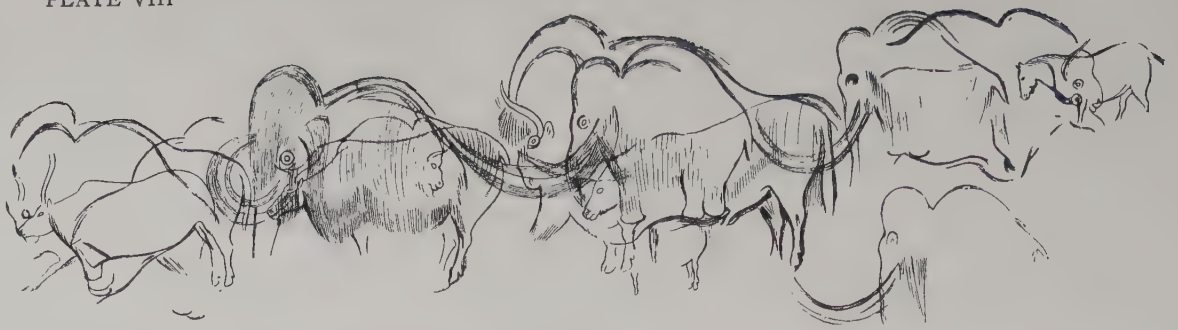
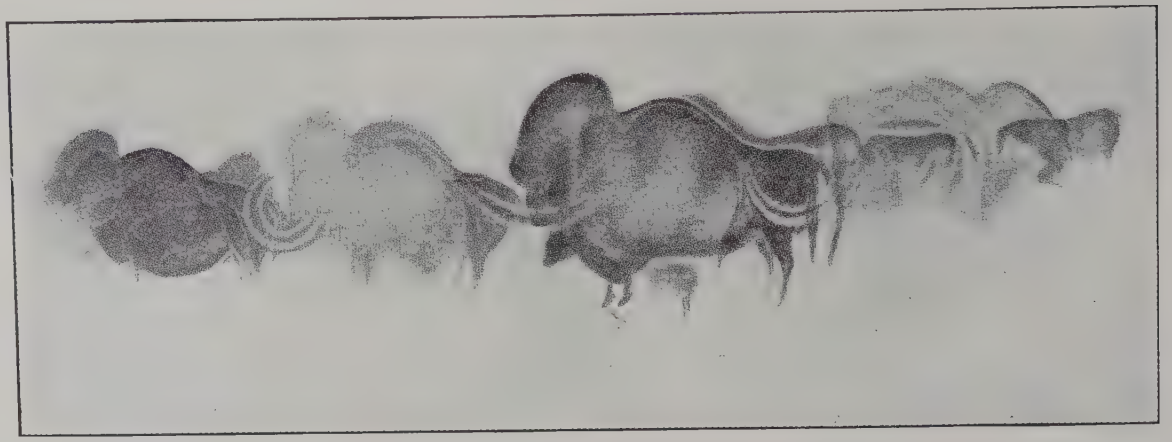


Fig. 108.—*Font de Gaume.* Engraving in diverticulum. (From *Cav. Font de Gaume.*)

a certain amount of shading in line is also to be observed. Perhaps the most interesting of all the figures are the paintings of *two Reindeer facing one another*, with heads

PLATE VIII





Cave of Font de Gaume. Fresco of mammoths, horses, bison and reindeer on the wall of the principal gallery. The upper illustration shows how the figures are also engraved. Length about 4·5 metres. (From *La Caverne de Font de Gaume.*)

lowered, and antlers towering above. The drawing is altogether admirable and the pose most natural. It is undoubtedly the finest mural representation of this animal yet discovered (Frontispiece, Plate I). Another painting of the greatest interest situated in the diverticulum is that of a *Rhinoceros*, both on account of the rarity of drawings of this animal in Palæolithic art, and of its representing an extinct form so characteristic of the early cave period. It is outlined in broad red bands, and a slight modelling of the body is produced by parallel lines from the back downwards and forwards and from the belly line up and backwards (Fig. 109). The head only of a

FIG. 109.—*Font de Gaume.* Rhinoceros in broad red line. Diverticulum. 2½ feet long.

Rhinoceros, also in broad red line, appears in the same part of the cave. These are the only paintings of this animal yet discovered: engravings of it on bone, horn, or stone are very few, and are much inferior in artistic merit. Just before the Rubicon is reached there is another smaller lateral gallery on the walls of which are representations of a wolf, reindeer, and horses. One of the last is of exceptional interest, though badly preserved, because the natural irregularities of the wall surface have been utilized to represent parts of the body of the animal. Two hanging stalactites simulate well the tail, haunches, and hind legs, whilst elevations of the surface at an appropriate distance represent the fore limbs. The part of

the wall between gives in relief a good impression of the body (Fig. 110).

Fig. 110.—*Font de Gaume.* Horse in relief by stalactites on wall. First lateral gallery. (From *Cav. Font de Gaume.*)

A few representations of the human *hand* stencilled on a black ground have been noticed. They recall those, to be described later, at Gargas. On the body of a bison in polychrome are two designs supposed to represent *huts* or tents, and thus belonging to the *tectiform* class of inanimate designs already mentioned (Fig. 111). Similar designs, both engraved and in colour, have been found in several parts of the cave. One or two central uprights appear to support some kind of roof. In two of

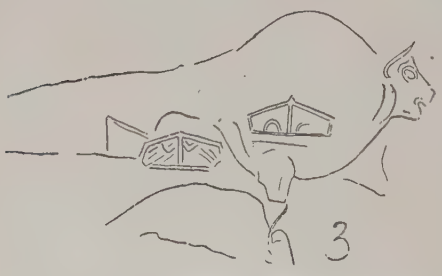


Fig. 111.—*Font de Gaume.* Tectiform designs on bison in polychrome.

them there is on either side of the central pillar a semi-circle suggesting an arched entrance. Another engraving suggests a dome-shaped hut. A comparative study of the dwellings of primitive peoples, like the Eskimo, Australians, and American Indians gives some support to such an interpretation of these designs.

A great many bones of the Cave Bear have been found in the floor of this cavern. They are, in fact, much more numerous than those of any other animal. In keeping with this numerous *deep striae* on the walls are believed to have been produced by the claws of this animal. In some places these striae correspond to the row of claws on the bear's foot, and at just such a height as the animal's forepaws would reach were he to stand on his hind legs facing the wall. It is interesting to observe at the end of the lateral gallery the figure of a bear in broad red outline drawn in this position. Involuntarily we see before our eyes this quaternary mammal in the cave assuming a position so natural, and so often observed in his modern representative.[1]

Bernifal.—This cave, also near Les Eyzies, was explored by MM. Capitan, Breuil, and Peyrony. On its walls are engraved figures of Mammoths, Bison, Horses, and Reindeer, and many curious triangular designs, probably tectiform. Some of these triangular designs are placed on the body of a *mammoth*. A rather fanciful interpretation of this drawing

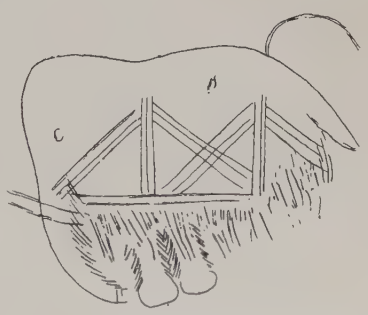


Fig. 112.—*Bernifal.* Mammoth with tectiform design.

[1] For full details see *La Caverne de Font de Gaume* (1910), Monaco, par L. Capitan, H. Breuil et D. Peyrony.

has been offered, viz. that the artist intended it to give him power over the animal[1] (Fig. 112).

Teyjat.—A cave known as La Mairie in the village of Teyjat, a few miles distant from Les Eyzies, was explored by M. Perrier du Carne in 1889. His excavations revealed a Magdalenian deposit containing characteristic flints and some remarkable engravings on bone of horses and bison. Not far from the entrance the cave divides into two branches, left and right. In the latter is a mass of stalagmite, having the appearance of a cascade. On its surface MM. Capitan, Breuil, and Peyrony discovered in 1903 a number of fine engravings of animals arranged in three series, one above the other. In the lowest were bovine animals, above them a horse and reindeer, and in the highest bison and a small horse which the discoverers think is of a different type from that of the same animal seen in the lowest series. There are also two engravings of bears, one of which probably represents the polar species (Fig. 113). The general character of these engravings is similar to those of the animal drawings in other caves, but they are much smaller.[2]

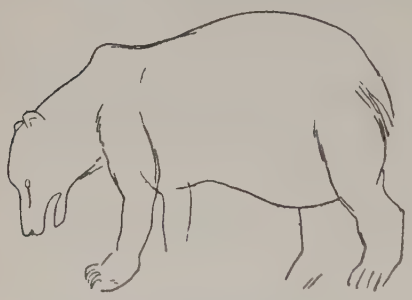


FIG. 113.—*Teyjat.* Engraving on stalagmite cascade.

La Grèze.—This is a small grotto, open to daylight,

[1] *Revue de l'Ecole d'Anthrop.*, Paris (1903), pp. 202-9, Figs. 61-3; also *C. R. Acad. des Inscript.* (1903), pp. 219, 599.

[2] *Revue de l'Ecole d'Anthrop.* (1903), p. 364; *C. R. Acad. des Inscript.* (1903), p. 407, and see *Cong. Nat. d'Anthrop.*, Monaco (1906), I., p. 391, Figs. 140, 141.

about four miles from Les Eyzies. There are only a few engravings on its walls, and only one complete drawing, viz. of a bison, but it is important to note that these were all completely covered with an ancient Palæolithic deposit when first discovered.[1]

Pair-non-Pair.—This cave, discovered in 1881, is situated in the department of Gironde. Its excavation was soon after undertaken by M. F. Daleau, who noticed some engraved lines on the walls as far back as 1883. It was not, however, until much later, in 1896, that his exploration

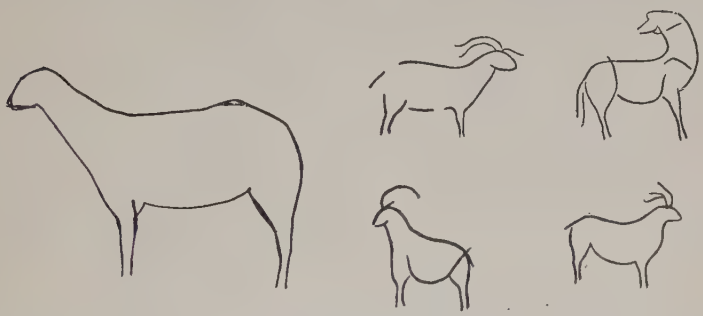


FIG. 114.—*Pair-non-Pair.* Deep line engravings on wall. Length of figs. 0·20 to 1·60 metre.

enabled him to distinguish engraved figures of animals, and which he described in the following year.[2] The figures, covering a surface of some thirty square yards, represent equine and ruminant animals, and are composed of deeply engraved lines (Fig. 114). There is very little evidence of colour on the walls, though many pieces of peroxide of iron were found : also stone crushers and shoulder-blades, showing signs of red colouring matter. Some bold spirits

[1] *C. R. Acad. des Inscript.* (1904), p. 487, Figs. 1-3; *Rev. de l'Ecole d'Anthrop.*, Paris (1904), p. 320.

[2] *Soc. Archéol. Bordeaux* (1897), pp. 236-50; *Rev. de l'Ecole d'Anthrop.*, Paris (1898), p. 20 (1899), p. 26; *C. R. Acad. des Inscript.* (1903), p. 40.

have ventured to suggest that the latter were painters' palettes! Excavation of the floor revealed the remains of an ancient and interesting fauna, for it included the Cave Lion, *Cervus megaceros*, the Mammoth and *Rhinoceros tichorhinus*. The upper deposits covered very largely the engravings on the walls. Daleau at first attributed the floor deposits to the Solutrian and Magdalenian periods, but, according to M. Breuil, they are of Aurignacian date. The importance of this conclusion, if reliable, is obvious, for it enables the age of the engravings to be determined. They must in this view be at least as old as the Aurignacian epoch, and would, therefore, be among the most ancient rock drawings yet discovered.

3. *THE PYRENEAN REGION.*

There are four caves in this region of much interest and well deserving close attention, viz. Marsoulas, Niaux, Gargas, and Mas d'Azil.

Marsoulas.—This cavern is situated in the south of the department of Haute Garonne, near Salies-du-Salut. It has been long known, and was partially excavated as far back as 1881. Signs of paintings on the walls were noticed by M. Regnault in 1897, but it was not until 1902, and subsequently, that the cave was carefully explored by MM. Cartailhac and Breuil. The drawings begin much nearer the entrance than in the caves already described. Engravings appear about 5 yards from the entrance and paintings 11 yards farther in. The paintings extend up to a distance of 50 yards. Some of them are of considerable size, e.g. one bison measures nearly 6 feet. The *Engravings* are smaller than the paintings. Fourteen of complete animals have been counted, among them being horses (Fig. 115), bison, and a stag. Parts of animals are

however much more numerous, amounting to something like a hundred, chiefly of the bison. Also several exceedingly crude outline engravings of the human face (Fig. 116). These well illustrate the extraordinary difference in the capacity of the Palæolithic artist for drawing animals and men. The two styles of engraving already mentioned as occurring at La Mouthe are seen here, viz. the deep continuous line, and the light shallow ones, often little more than scratched lines, occasionally used for shading. The *Paintings* are best preserved and most clearly seen in the central gallery, and comprise animal and linear designs. The *bison* is seen outlined in black, and the body filled in with red. In another figure the body of a *bison* is covered with numerous red dots, whilst the head is uniformly coloured. Others again are painted wholly black[1] (Fig. 117). The inanimate designs are nearly all red. The *tectiform* are represented by a design similar to that seen at Font de Gaume. The so-called *pectiform* design composed of a row of parallel lines connected at one end by a horizontal line is also present. This design has been differently interpreted as a comb and

FIG. 115.—*Marsoulas.* Wall engraving.

FIG. 116.—*Marsoulas.* Engravings on wall.

[1] *L'Anthrop.*, XVI., p. 439, Fig. 9; p. 441, Fig. 10; p. 438, Fig. 8.

as a degenerate representation of the hand. This design is seen on the body of a bison, the finest polychrome in the cave, recalling by its style, technique and disposition of the colours, the polychromes of Font de Gaume and Altamira.

Fig. 117.—*Marsoulas.* Paintings of Bison—red and black.

Other designs roughly resemble *branches of trees.* Rows of dots complete the list (Fig. 118). It will be observed that among the animals there are none that are extinct, thus differing from the caves of the Dordogne district. Excavation of the floor revealed deposits of different periods, the most recent of which contained needles and engravings, but no harpoons. The horse characterized the lower, the reindeer the upper beds.[1]

Fig. 118.—*Marsoulas.* Plant, tectiform, and other designs.

Niaux.—This cave, discovered in 1906, situated near Tarascon, more than 300 feet above the Vic de Sos, a

[1] "Les peintures et gravures murales des cavernes pyrenéennes," par E. Cartailhac et H. Breuil, in *L'Anthrop.*, xvi. (1905), pp. 431 *et seq.*

tributary of the river Ariège. It is lofty and nearly 1500 yards long. As at Marsoulas there are on the walls engravings, paintings, and inanimate designs. The last are numerous and include the *tectiform*, red and black dots arranged in lines and circles, and little bands in series arranged in a curve. Others recall the markings on the Mas d'Azil pebbles. A curious club-shaped or *claviform* design is also present (Fig. 119). The engravings and paintings are found principally in what the explorers, MM. Cartailhac and Breuil, call the rotunda, the circular termination of a right branch of the main cave, about half-way through. Here are found excellent drawings of the bison, horse, stag, and ibex. The first named greatly predominates. All are represented in profile, and the line work is extremely good: in the words of the explorers, "Niaux triomphe pour les dessins au trait". Black is the only colour used in the paintings, the reds and browns seen elsewhere are absent. None of the animals are represented life-size; the largest, a horse, measures five feet from nose to tail. Some bison have on their bodies small red triangular marks which have been supposed to represent arrow-heads, a very doubtful interpretation, seeing there is no other evidence of the Palæolithic hunters of this region being acquainted with the bow. The explorers were much impressed with the excellent state of preservation of the drawings. This they attribute to the stillness of the atmosphere, the air and walls consequently having the same temperature. In one place designs were observed on the floor covered with a thin layer of stalagmite. Two of these were of *fish*, possibly trout from the neighbouring

Fig. 119.—*Niaux.* Bison and claviform designs.

stream (Fig. 120). They also believe they were able to distinguish traces of human footprints. Their wonder and astonishment must have equalled Crusoe's! In an-

FIG. 120.—*Niaux*. Fish engraved on floor of cave.

FIG. 121.—*Niaux*. Bison engraved on clay floor.

other part of the cave on the ground, here of hardened clay, is an excellent engraved figure of a bison with what look like three holes (? wounds) in its side[1] (Fig. 121).

Gargas.—This cave, situated near Montrejeau, in Haute Garonne, has been known for many years, and a plan of it was published in 1892. It was not however until 1906 that M. Regnault noticed on its walls, and on masses of stalagmite, *designs of hands*, stencilled out on a reddish-brown ground. These observations were confirmed and extended in 1907, and on subsequent occasions by MM. Cartailhac and Breuil. About a hundred and fifty of these hand-designs have now been discovered, in some instances very well preserved owing to their being covered with a thin layer of stalagmite. They are all turned upwards (Fig. 122). The great majority are of the left hand, from which it has been argued that Palæolithic man, like his modern successors, was right-handed, for only thus would he have thrown the coloured powder to stencil out the left hand. This however is not conclusive, for he might have adopted a method observed among the Australian natives of projecting the colouring matter from the mouth.

[1] *L'Anthrop*., XIX. (1908), p. 43, Fig. 30; p. 45, Fig. 32; p. 26, Fig. 9.

In many of these designs some of the fingers are very short, wanting in fact the last two joints. The most plausible explanation of this deformity is that these figures represent hands which have been mutilated by cutting off the terminal joints, as is customary among some savage tribes, e.g. the Mafulu of New Guinea. Precisely similar hand-designs stencilled out on a coloured ground have been observed in Australian caves, the work of the aborigines. They have also been found in caves of Arizona and Nicaragua, executed by the American Indians.[1] On the walls in certain places amidst a scrawl of engraved lines appear engravings of the heads of horses and bison. Very curious are designs, apparently traced out with the finger, on clay forming a coating on the wall. In this way heads of horses, and in one place an almost complete figure of this animal, have been drawn. More singular still are *series of curved lines* on the clay covering the roof of the inner part of the cave. This curious decoration consists of interlacings and arabesques marked out with the fingers or some pointed instrument. It is so extensive that the person making it must have been obliged to change his position several times to complete it.[2] Deep striae are seen on the walls resembling those at Font de Gaume, and attributed to the same cause, the bear's claws. There are no signs of Neo-

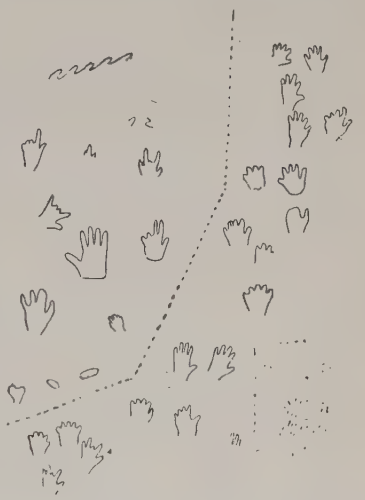


FIG. 122.—*Gargas.* Hand-designs stencilled on wall of cave.

[1] *Jo. Anthrop. Institute*, XXV., Plate XIV, Figs. 1-4; *Bureau of Ethnology, Smithsonian Inst.* (1894-5), Plate LV.

[2] *L'Anthrop.*, XXI., pp. 139, 142.

lithic culture in this cave, no evidence of metals. There are however signs of occupation alongside the cave bear, and an almost complete skeleton of the cave hyena has been recovered. Not far from the entrance the floor deposits have revealed worked flints and animal bones, which have been referred to the Aurignacian epoch. It was here that fallen debris had closed the entrance and shut the cave, so that the mural ornamentation may well date from an early part of the Reindeer age. The floor of the vestibule has since been excavated to a depth of 16 feet, and the results confirm the antiquity of the contents of the cave.[1]

Mas d'Azil.—This celebrated cavern, in Ariège, is really a tunnel through which flows the little river Arise, and it is traversed by a carriage-way. It is not for rock drawings that this cave has become so well known. There are at best only a few traces of anything in the way of paintings on the walls. On the right bank of the stream is a large talus over thirty feet deep, containing much evidence of man's presence, including fine specimens of prehistoric art, notably of sculpture, both in relief and in the round, examples of which have already been described. M. Piette first visited this cavern in 1887, and for many years afterwards very carefully investigated the deposits. In these he believed he was able to recognize a definite stratification corresponding to different stages in the evolution of Palæolithic culture, and finally passing to the Neolithic period. Here we shall refer to only one of the results of M. Piette's indefatigable explorations, and to it because of its connexion with the paintings we are considering. It is the discovery at a definite level in these deposits of coloured pebbles, *galets colorés*, to the number of several hundreds (Fig. 123). This level was afterwards termed *Azilian*, and has been re-

[1] *L'Anthrop.*, XXI. (1910), p. 130; XXIII. (1912), p. 26.

garded as marking a transition stage from the Palæolithic to the Neolithic period. It may not be inappropriate to mention that in the course of his excavations M. Piette came across two skeletons, the bones of which had been coloured red with peroxide of iron. "But the most striking objects in this place," he adds, "were the numerous

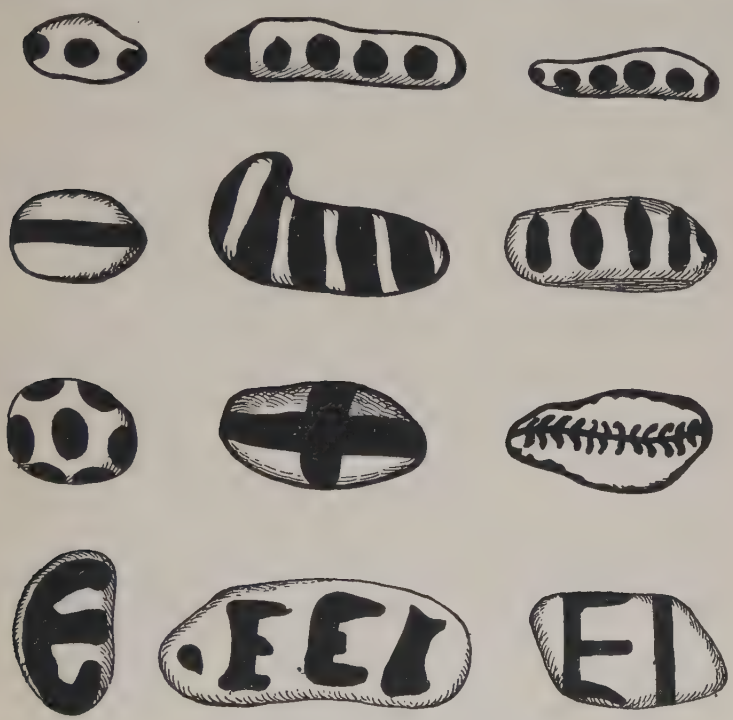


Fig. 123.—Galets colorés from *Mas d'Azil*.

pebbles coloured with peroxide of iron. It was not without astonishment, nor without a keen sense of curiosity, that I made the discovery of these paintings, the most ancient known."[1] These stones are flat and more or less oval

[1] *L'Anthrop.*, VII., p. 386. M. Piette's collection of *galets colorés* is now in the Musée Nationale at St. Germain-en-Laye. Subsequent discovery has, of course, shown that he was mistaken as to their age as paintings.

in shape, and bear red marks about half an inch wide. Occasionally the whole pebble has been tinted of a rose colour before making the red marks. Often the edge was coloured so as to form a band enclosing the designs, producing a kind of *cadre aux dessins*. The colouring matter used was no doubt peroxide of iron, for this substance is found in the cave. Before application it was probably mixed with some greasy or resinous matter, for it adheres firmly to those stones which have not undergone decomposition : even washing does not readily remove it. These are of greyish quartz. Others are of a white stone which has gradually suffered some decomposition, and from these the least rubbing removes the colouring matter. The markings are arranged in a variety of ways, e.g. rows of lines or dots, or they assume shapes suggesting pictographs and symbolical signs. M. Piette went so far as to claim for some of the graphic signs an *alphabetical significance*.[1] He thought he was able to see in some of them resemblances to Phœnician and archaic Greek letters, and in others to designs on Dolmens. A more probable explanation of these painted stones is that they had a *totemic* meaning, and are comparable to the *churinga* of the Arunta tribe of Central Australia, whose social organization has been so fully described by Spencer and Gillen.[2] From his study of the deposits in which they were found, M. Piette came to the conclusion that they date from near the close of the Reindeer age. This being so, it is clear that he was at first mistaken in regarding his *galets colorés* as being the most ancient paintings known, for, as we have seen, many of the cave paintings are much older. It is not uninteresting to note that painted stones comparable to these prehistoric coloured pebbles have been dis-

[1] Cf. *L'Anthrop.*, XIV., p. 41, and XVI., p. 1.

[2] *The Central Tribes of Australia* (1899).

covered widely distributed in America. In the southern continent they have, in fact, been found among native tribes from Guiana to Patagonia.[1]

4. *THE REGION OF NORTH-WEST SPAIN.*

In this district more or less evidence of mural decoration has been discovered in no less than sixteen caves. First and foremost is that of *Altamira* à Santilane, already referred to. Situated not far from Santander, on

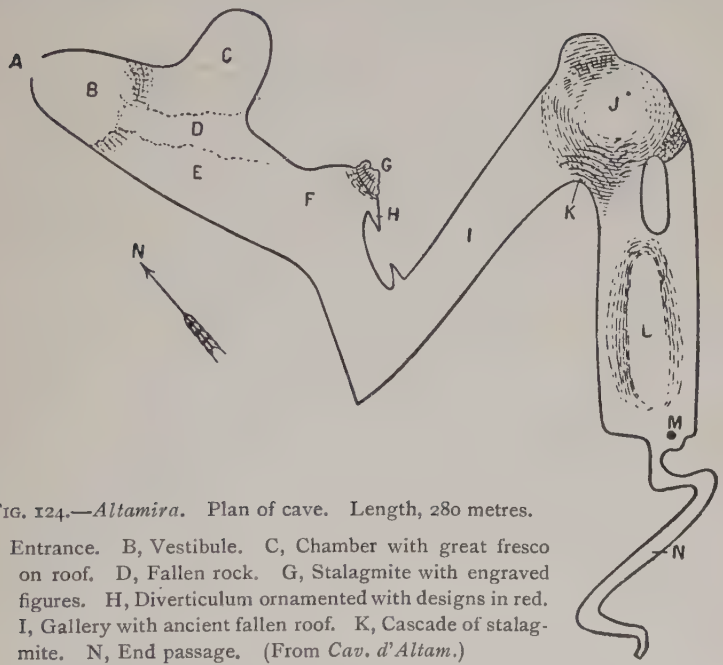


FIG. 124.—*Altamira*. Plan of cave. Length, 280 metres.

A, Entrance. B, Vestibule. C, Chamber with great fresco on roof. D, Fallen rock. G, Stalagmite with engraved figures. H, Diverticulum ornamented with designs in red. I, Gallery with ancient fallen roof. K, Cascade of stalagmite. N, End passage. (From *Cav. d'Altam.*)

the northern flank of the Cantabrian mountains, it was discovered by a hunter in 1868, and explored and described by M. de Santuola in 1879 and the following year. The importance and significance of its mural ornamenta-

[1] See Wilson on "Prehistoric Art" in *Ann. Report Smithsonian Institution* (1896), p. 325.

tion was not, however, realized and appreciated until several years later, when the cave was again examined and most carefully studied by MM. Cartailhac and Breuil, who have published the full results of their investigations in a finely illustrated monograph[1] (Fig. 124). On the walls and roof are engravings and *paintings* of animals. The latter consist of mere outlines in black (Fig. 125), or are wholly coloured red or black, or are represented in polychrome. Of those wholly modelled in black, one

FIG. 125.—*Altamira.* Outline painting, black. (From *Cav. d'Altam.*)

of a bison is a remarkable work of art, and there is seen above it in red one of those pectiform designs already described at Marsoulas (Plate X). The most important paintings are found in a chamber on the left (as you pass in), not far from the entrance. Here on the roof is a fresco (Fig. 126) of more than a score of animals, mostly of the bison in *polychrome* (Plate XI, Figs. 127, 128). Deer (Plate X) and the wild boar (Fig. 129) are also among them. The animals are shown in all kinds of positions suggestive of rest, movement, and energy. Referring to

[1] *La Caverne d'Altamira*, Monaco (1906).

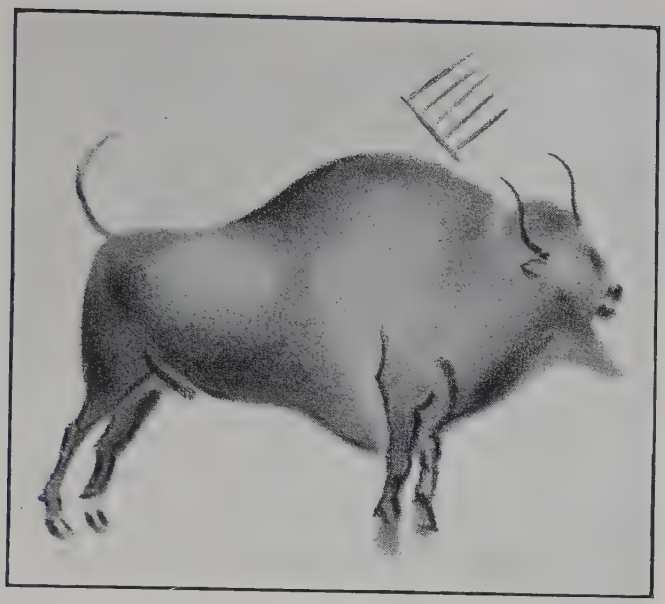
Cave of Altamira. Bison in Polychrome on the Roof. Length, 1.50 metre

(From *La Caverne d'Altamira*)

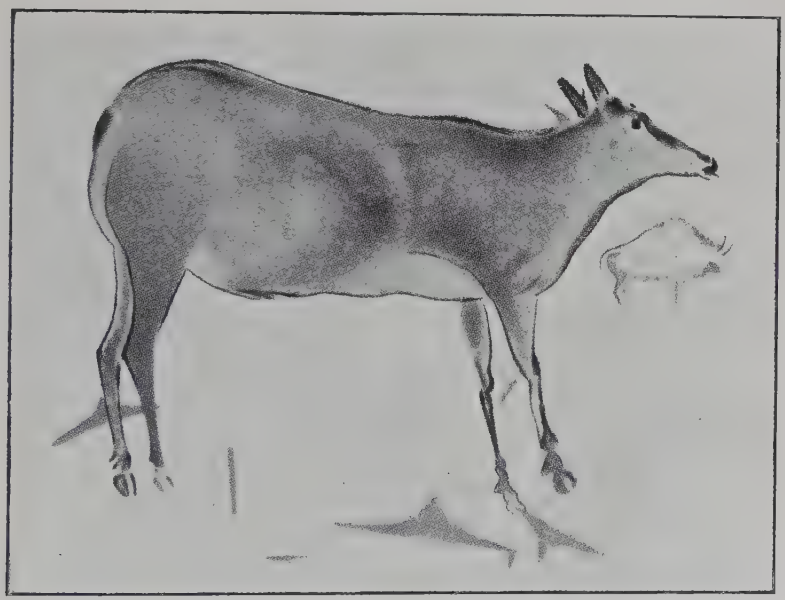
FIG. 126.—*Altamira.* Great fresco on roof. About 14 metres long. (From *Cav. d'Altamira.*)

FIG. 127.—*Altamira.* Bison jumping, polychrome.

FIG. 128.—*Altamira.* Bison in polychrome. Great fresco. (From *Cav. d'Altam.*)



Bison painted in black. Pectiform design red. Length, 0·90 metre.



Hind painted in red. Little Bison, black. Length, 2·20 metres.

Cave of Altamira. In fresco on roof. (From *La Caverne d'Altamira.*)

this extraordinary example of prehistoric art, MM. Cartailhac and Breuil, after spending a month in the careful study of the mural decoration of the cave, describe it as "l'œuvre la plus parfaite que nous puissions actuellement citer de ses épqoues reculées, et qui place les vieux peintres des âges glyptiques, bien au dessus les animaliers de toutes civilisations de l'Ouest classique, et de la Grèce, rien n'égale la rigueur du tracé, l'habilité et le fondu des nuances rouges, brunes et jaunes qui se mélangent et se graduent en mille demi-teintes". This is all the more

FIG. 129.—*Altamira.* Great fresco. Wild boar, polychrome.

FIG. 130.—*Altamira.* Stag engraved on great fresco roof. Length, 0·66 metre. (From *Cav. d'Altam.*)

extraordinary since the roof is so low that the artist must have been compelled to assume a kneeling or even recumbent position to execute the work. The figures vary

from about four to seven feet in length. Most of those of the bison measure about five feet from nose to tail. This in fact is the length of the best preserved polychrome (Plate I). The polychromes were engraved in outline before

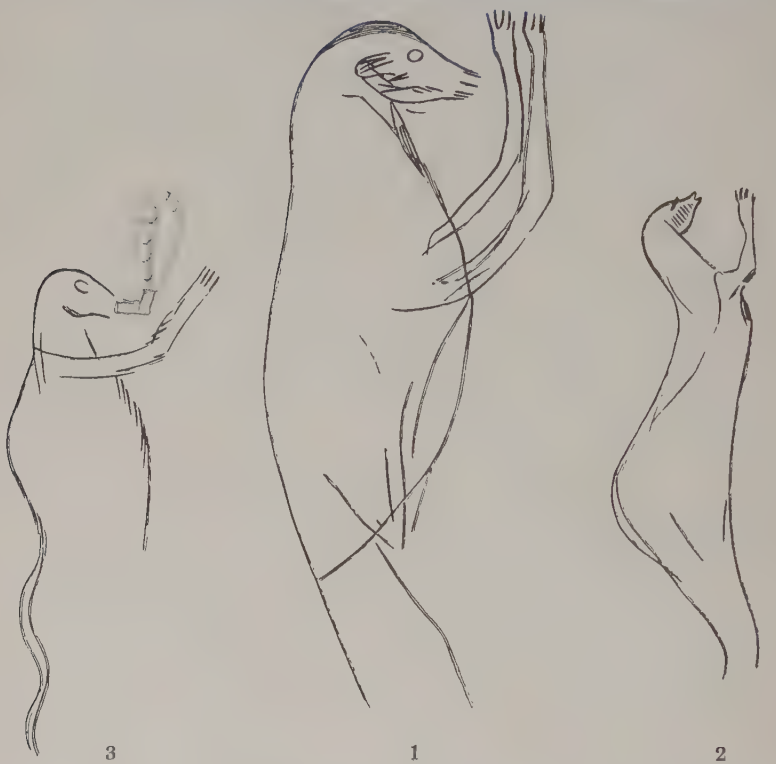


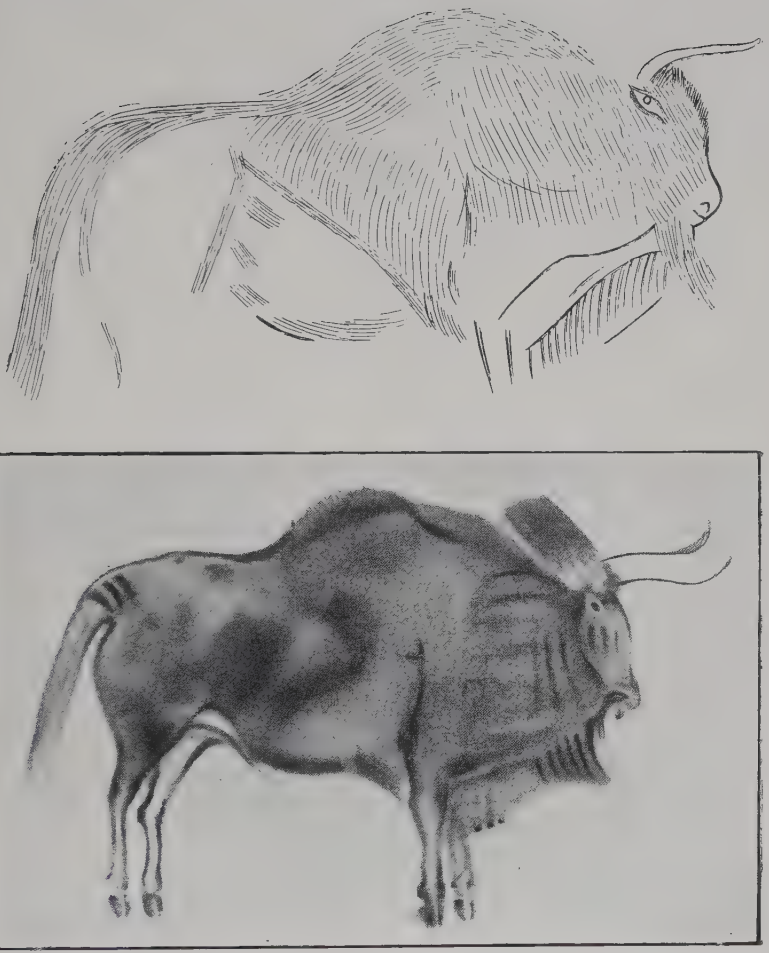
Fig. 131.—*Altamira.* Engraved anthropomorphic figures. (1) 0·60, (2 and 3) 0·40 metre high. (From *Cav. d'Altam.*)

the colour was applied, and in some cases a great part of the body as well.[1] The reindeer is conspicuous by its absence.

Engravings of animals are numerous and have been observed in many parts of the cavern. They include the great stag (Fig. 130), deer, goat, bison, horse, and several *anthropomorphic designs* with animal heads, and arms up-

[1] Cf. *La Caverne d'Altamira*, pp. 93-109.

PLATE XI



Cave of Altamira. Bison in polychrome. Length, 1·30 metre. The upper illustration shows how the figure is also engraved.
(From *La Caverne d'Altamira.*)

lifted as if in supplication, or the dance (Fig. 131). They may possibly represent men wearing masks, and recall the figure engraved on bone found at Mas d'Azil. These crude representations of the human form are engraved on the roof bearing the great fresco. Here also occur non-zoomorphic designs, among which are some composed of series of lines radiating from a common point and may possibly represent huts or tents. The engravings are for the most part executed in fine lines, whether for outline or for shading. In some cases, however, the body contour is drawn in deep continuous line (Fig. 132). On the great fresco roof are also several designs in red to which the term *naviform* has been applied from a fancied re-

Fig. 132. — *Altamira.* Example of deeply incised engraving. (From *Cav. d'Altam.*)

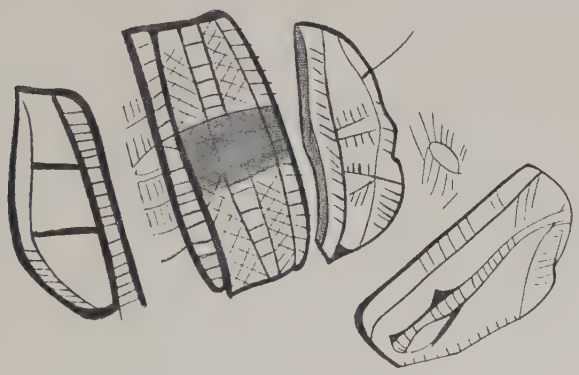


Fig. 133.—*Altamira.* Black painted tectiform designs. (From *Cav. d'Altam.*)

semblance to a boat. They would probably be more correctly related to the club-shape or *claviform* designs already referred to at Niaux. In the end gallery are other designs in black referable to the *tectiform* class

(Fig. 133). Here also is seen a *hand-design* stamped in red, and near it are two others stencilled out on a brown-black ground. On a fallen frieze in the grand gallery are engraved series of meandering lines recalling those at Gargas.

Excavation of the floor in the vestibule by M. Alcalde del Rio has revealed some interesting facts. He was able to distinguish two strata, an upper Magdalenian and a lower Solutrian. In the former he found shoulder-blades on which were engravings of animals. It is of the greatest interest and highest importance to note the essential similarity in the style of the engraving of deers' heads on these pieces of bone, and of the engravings of the same animals on the great fresco roof (see Figs. 153, 154). As M. Alcalde del Rio remarks, the identity between the designs from the two sources is comlete. It points to their actual contemporaneity, and thus affords proof of the age of the engravings on the walls of the cave.[1]

Castillo is a very large cave near Puente Viesgo, a few miles south of Altamira. It was discovered by M. H. Alcalde del Rio in 1903, and has since been carefully explored by him in company with Abbé Breuil and Père Sierra. There are drawings of the *Elephant* (Fig. 134), bison, and great stag in red or yellow, and of the horse, hind, ibex, and chamois in broad black bands. The drawing of the elephant is of much interest because this and a similar one at Pindal are the only evidence we at present possess of the existence of this animal in these regions in Palæolithic times. And it appears to be a different species from the Mammoth so common in south-west France during the same period. The *polychromes* are very few ;

[1] *La Caverne d'Altamira* (1906), p. 274, and cf. *Les Cavernes de la Region Cantabrique*, par H. Alcalde del Rio, H. Breuil et Père Sierra, Monaco (1912), p. 220, Figs. 214-5.

they are executed in the Altamira manner. *Engravings* are numerous, and include the horse, hind, ibex (Fig. 135) and bison. Amongst them are examples of shading of the head and neck, by long parallel fine lines, exactly similar to those seen in Magdalenian deposits at Altamira. One of the most interesting discoveries at Castillo is that of nearly fifty *hand-designs*, stencilled out on a red ground (Plate XII). As at Gargas they are nearly all of the left hand, but they show no sign of the mutilation observable there. They are mostly collected in one place, hence called the *Frise des Mains* (Fig. 136). In this respect and in their general character they show a remarkable resemblance to a collection of hand-designs described by R. H. Mathew in a

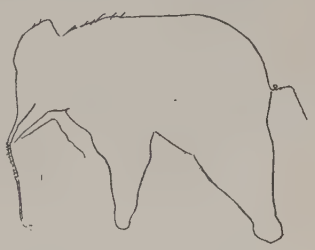


FIG. 134.—*Castillo.* Elephant in broad red line.

FIG. 135.—*Castillo.* Ibex and hind engraved.

cave in Australia. In this cave situated in the parish of Tupa, Hunter county, fifty-seven hand-designs are stencilled out on a white ground, arranged in a row.[1] A similar

[1] *Jo. Anthrop. Inst.*, XXV. (1893), p. 145, Plate XIV.

frieze-like arrangement of hand-designs stencilled on rock have been observed in the Cañon Chilly in Arizona.[1]

Fig. 136.—*Castillo.* Plan of cave showing position of the Frise des Mains. (From *Cav. Reg. Cantab.*)

There are at Castillo a good many inanimate designs, including *tectiforms* clearly related to those of Altamira

[1] *Smithsonian Institution Report, Bureau of Ethnology*, 1894-5, Plate LV.

PLATE XII

Cave of Castillo. Frise des Mains. Hands stencilled in red. Tectiform, red. Bison, yellow. Length about 5 metres.
(From *Les Cavernes de la Region Cantabrique.*)

and other caves (Fig. 137), and rows of *red discs*, sometimes arranged in quite an ornamental fashion.

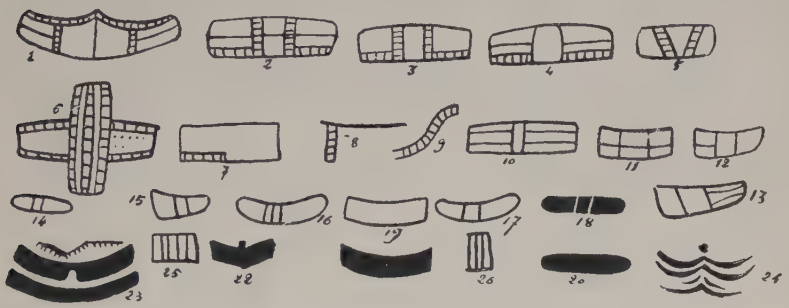


Fig. 137.—Tectiform designs, 1-7, 10-13, 15-20, 22, 23, *Castillo*. 8, 9, 14, 24, 25, *Altamira*. 21, *Covalanas*. 26, *Novales*. (From *Cav. Reg. Cantab.*)

Of the other caves in this region attention must be called to *Hornos de la Peña*, not far from Castillo, and discovered in the same year. On its walls are numerous engravings of horses, ibex, and bison, and a tailed anthropomorphic figure with arms uplifted like that at Altamira (Fig. 138). This cave attracts attention by the presence of *meandering lines*, and crude figures of animals, traced in outline with the finger, or some pointed instrument, on clay which covers in places the walls. They immediately recall the designs made in the same way at Gargas.[1] Animal figures executed in

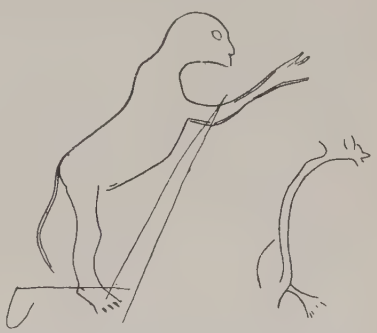


Fig. 138.—*Hornos de la Peña*. Engraved anthropomorphic figure.

[1] *Les Cavernes de la Region Cantabrique* (1912), pp. 85-111, Figs. 85, 86, 96. In the long entrance passage of Hornos recent excavations have revealed Palæolithic deposits, showing distinct stratification of Mousterian, Aurignacian, Solutrian, and Magdalenian beds. See *L'Anthropologie*, XXIII. (1912), p. 6, Fig. 7.

a similar manner are more numerous and striking in the cave of *St. Clotilde d'Isabel*, not far from Altamira.

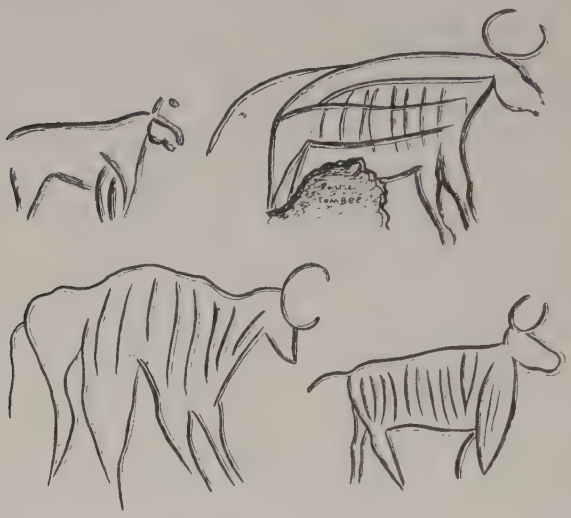


Fig. 139.—*La Clotilde de Santa Isabel.* Oxen engraved on clay, 0·27 m., 0·60 m., 0·75 m., 0·30 m. long. (From *Cav. Reg. Cantab.*)

They are chiefly of oxen, and some of the figures are better drawn than any of those at Hornos de la Peña[1] (Fig. 139). The cave of *Venta de la Perra*, to the east towards Bilbao, is noticeable for the presence on its walls of an engraving of a *bear*. Although merely an outline, the form and attitude of this animal are well seized[2] (Fig. 140).

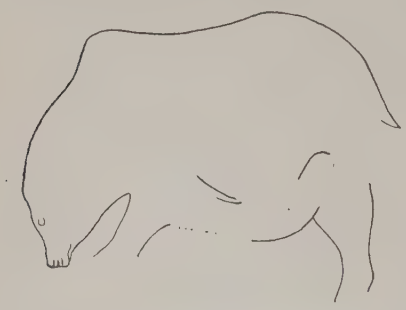


Fig. 140.—*Venta de la Perra.* Engraving of bear.

At *Covalanas*, near Ramales, there are numerous figures

[1] *Cav. Reg. Cantab.*, Fig. 46 (4), p. 45.
[2] *Ibid.*, Fig. 4, p. 4.

outlined in red. The lines are largely broken, giving the appearance of a series of dots[1] (Fig. 141). But the use of red colouring matter for outlining the drawings of animal figures is more largely used at *Pindal*, a cave near the Deva,

FIG. 141.—*Covalanas*. Hinds painted red.

in the province of Oviedo, romantically situated in the cliffs overlooking the sea. This is one of the most interesting of the Cantabrian caves, and was discovered by Alcalde del Rio in the spring of 1908. There are figures of bison and deer outlined in broad, sometimes spreading red bands. The most striking example of this mode of delineation is the figure of an *elephant* almost exactly resembling that at Castillo. It has a large subtriangular red spot on the body over the chest. The long trunk is a marked feature and the short tail is also shown (Fig. 142). Of the engravings at Pindal the most interesting is that of a *marine fish* 18 inches long, the fins and tail being distinctly shown (Fig.

FIG. 142.—*Pindal*. Elephant in broad red line. Length, 0·44 metre. (From *Cav. Reg. Cantab.*)

[1] *Cav. Reg. Cantab.*, Fig. 20, p. 97, and Plates IX-X.

143). With the exception of the engravings, supposed to be of trout, on the floor at Niaux, this is the only representation of a fish yet discovered on the wall of a cave.

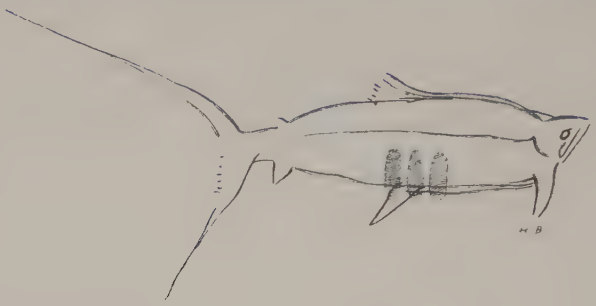


FIG. 143.—*Pindal.* Wall engraving of a marine fish. Length, 0·43 metre. (From *Cav. Reg. Cantab.*)

Niaux is also recalled here by the presence of clubshaped or claviform designs in red (Fig. 144).

El Pendo.—This cave, situated some miles south of Santander, is notable for an engraving of a *bird* (Fig. 145),

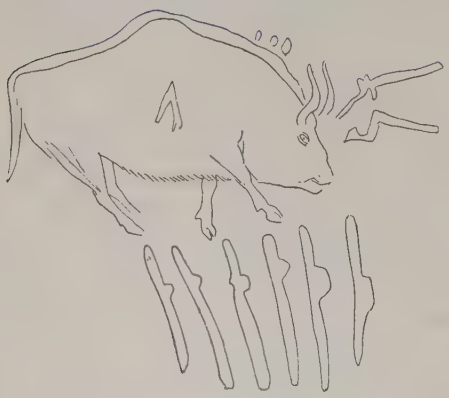


FIG. 144.—*Pindal.* Bison partly painted, partly engraved. Claviform designs in red. Figure about 2 feet long.

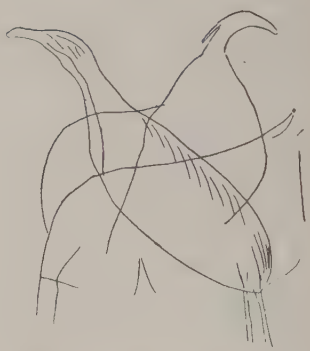


FIG. 145.—*El Pendo.* Engravings of birds on wall of the cave.

an animal rarely seen in mural decoration, and by no means common, carved or engraved on objects found in the floor

deposits. Another example has recently been observed by M. Breuil at Gargas.[1]

Santian.—The only figures in this cave, situated not far from El Pendo, are *broad red linear designs* suggestive of an arm and hand ; others have a trident-like termination ; others again are quite plain with no finger-like ends. The discoverers have ventured to compare them to the waddy, boomerang, and nulla-nulla of the Australian aborigines.[2]

La Pasiega.—The most recently discovered cave in this district is by no means the least remarkable for the decoration of its walls. It is La Pasiega, close to the hamlet of Villanueva, in the neighbourhood of Castillo. They are ornamented with an extraordinary number of animal figures. There are more than 200 paintings and thirty-six engravings, including those of deer, horses, bison, stag, ibex, and chamois, with tectiform and other inanimate designs. The colour employed is chiefly red, a few figures being in yellow or black.[3] There are several figures of stags with horns recalling by their execution rock paintings of these animals previously observed in Eastern Spain to which part of the Peninsula we may now turn.

5. *SPANISH ROCK PAINTINGS.*

Paintings on rock surfaces have recently been discovered in many places in Central and Eastern Spain. Some of them are of peculiar interest because they include

[1] *L'Anthrop.*, XXIII. (1912), p. 27.

[2] *Les Cav. de la Reg. Cantabrique* (1912), Figs. 32-5 and Plates XXV and XXVI.

[3] *L'Anthropologie*, XXIII. (1912), p. 15, and *La Pasiega, à Puente Viesgos* (Santander, Espagne), par H. Breuil, H. Obermaier, and Alcalde del Rio (1913).

figures of the human body so seldom seen in the French caves, where also they are so crudely drawn. At Tejera near the *Calapata*, a tributary of the Ebro, paintings of animals, some in red, others in black, are seen in a cave and on exposed rocks. The stag, goat, bull, and ibex are depicted, some of the figures being well drawn and life-like.

Cogul.—Near the village of Cogul, in the province of Lerida (Catalonia) are a series of frescoes on the exposed rocks. In one a man is shown attacking a bison. Another

FIG. 146.— *Cogul.* Figures painted in black and red, on rock surface.

is composed of a group of animals, a stag with four deer around him, a bull and an eland. The colour in all cases is red. The most interesting of these frescoes is composed of a *group of ten human figures*—nine women and one man—arranged in a row, the man in the middle with five women on one side, and four on the other. Black predominates in the colouring, though a certain amount of red is introduced. No facial features are shown. The man's body is little more than a series of lines with a dot for the head. His feet are indicated, and ornamental ap-

pendages at the knees. The heads of the women are simply sub-triangular spots. Their bodies are narrow waisted, with skirts reaching to the knees, and a kind of mantle over the shoulders. The attitudes, though somewhat chaotic, are suggestive of a dance[1] (Fig. 146).

About three miles from the town of *Albaracin*, in the upper valley of the Guadalaviar river, are painted rocks which have long been known to the natives. In October, 1909, M. Calvé Aguilo examined them, and in May of the next year, with M. Breuil, made a thorough study of the paintings. On the vertical wall of a shelter covering

Fig. 147.—*Albaracin* (Aragon). Bulls coloured red. Human figures, three coloured white and two black—on wall of a rock shelter.

a space of about four yards are paintings of a number of *torricos* or little bulls. Drawn in profile they form two groups of two figures on the right, and five on the left. All except two stand out in bright colour on the dark red, almost black ground of the rock. The colour of the figures varies from a very pale rose to a yellowish cream. Five of the figures are complete. The hoofs and horns, with one exception, are represented as if seen in front.[2] About three miles from the preceding, in an almost inaccessible situation, is a rock shelter, the wall of which is adorned with a fresco about four yards long, composed of paintings of six bulls (Fig. 147). Coloured a dull red,

[1] "Les peintures rupestres du bassin inferieur de l'Ebro," par H. Breuil and J. Calvé Aguilo in *L'Anthropologie*, xx. (1909), p. 1.

[2] *Ibid.*, xxii. (1911), p. 642, Plate II.

fading into white at the edges, they are arranged in two groups, right and left, facing one another. Between them are *five small human figures*, three coloured white, and two black. Although composed of little more than lines, these little figures are of great interest, because two of them carry bows, and one is aiming at the animals facing him: he also carries a spare arrow in his belt. No representation of the bow has yet been discovered in Palæolithic art in the Cantabrian caves, or north of the Pyrenees.[1]

Much more numerous and interesting paintings of human beings were discovered towards the end of the year 1910 by M. Pascual Serrano, about three miles north of *Alpera*, at the foot of the Sierra Chinchilla, in the south-east of the Peninsula. Here at the back of a small shelter, known by the name of Cueva de la Vieja, are many paintings in red and brown, on a sort of frieze some twelve yards long. A second shelter close by —Cueva del Queso—was also similarly adorned, but the paintings here have suffered much from the crumbling away of the rock surface. A hundred and fifty figures have been counted on the walls of these two shelters, of which no less than seventy are of human beings. Only three are of women, but they are very interesting. Two

FIG. 148.—*Alpera*. Female figures on rock-shelter wall.

[1] *L'Anthrop.*, XXII. (1911), p. 642, Plate II.

of them recall by their dress the figures at Cogul, and in one of these the features are clearly distinguishable (Fig. 148). The forehead is high and straight with slightly marked superciliary eminences. The nose is aquiline, and the mouth projects somewhat above a prominent chin. The hair is indicated by a series of vertical lines. The right hand is raised to the face, the left lies on the breast. The men are nude save for garter-like ornaments and rings on their legs. Some have ornaments, apparently feathers, on their heads, in one case at least recalling the head-dress of North

Fig. 149.—*Alpera* (Albacate). Paintings in red and brown on wall of rock shelter.

American Indian chiefs. Many of them carry *bows* and arrows, and several are in the act of drawing the bow, in some cases on animals in realistic attitudes (Fig. 149). In fact these little hunters are seen in all kinds of postures and attitudes, and are full of life and movement. The bows appear to be of two different shapes, and the barbed points and feathered shafts of the arrows are clearly discernible. Some of them also carry spears, the head in one case at least being oval in shape. Stags, wolves, oxen, hinds, ibex, and perhaps birds and dogs are among the animals re-

presented, and there are several designs of unknown meaning.[1]

To the south of Alpera at *Velez Blanco* and *Lubrin* and to the east at *Fuencaliente* and *Jimena*, as at *Batuecas* in Estramandura, painted figures and designs occur on rocks and shelters in considerable numbers. "But what

Fig. 150.—Stylized human figures on walls of shelters and caves in Andalusia. 1st line, *Lubrin* (Almeria), *Jimena* (Jaen). 2nd and 3rd lines, *Velez Blanco* (Almeria). 4th line, *La Golondrina* (Fuencaliente), *La Batanera* (*id.*). 5th line, *La Piedra Escrita* (Fuencaliente).

predominates everywhere are schemes of the human figure, whose variants are innumerable, though reducible to a few fundamental types" (Fig. 150). They appear to afford striking examples of the degradation of forms by repeated copying. The human form becomes stylized, and ultimately unrecognizable. Some of these *stylized figures* show a re-

[1] *L'Anthropologie*, XXIII. (1912), pp. 529-62, Plate I.

semblance to alabaster figures discovered by M. Siret, and attributed by him to the older Neolithic period. Abbé Breuil however considers it probable that the great majority of these designs are of Magdalenian age, but were made by the so-called Azilians (Fig. 151). These may have been displaced by Neolithic invaders coming from the east by the Mediterranean, resulting in some of them going north and there influencing the style of decoration of the Cantabrian and French caves, being responsible for some of the non-zoomorphic designs, and possibly reaching even as far as Scotland ; others taking refuge across the sea in

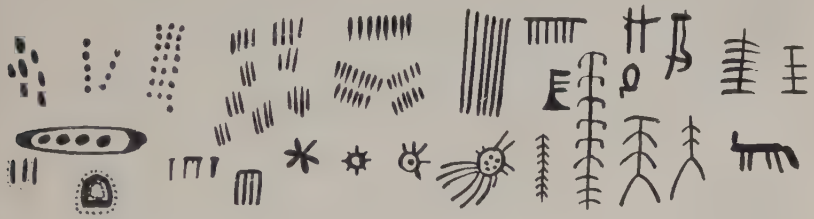


Fig. 151.—Azilian designs at *Batuecas* (Salamanca), recalling the *galets colorés* of Mas d'Azil and the petroglyphs of Andalusia.

North Africa may have reached the Sudan, reappearing there in the very similar schematic decorations on rocks at Air recently described by M. F. de Zeltner.[1]

6. *CONDITIONS UNDER WHICH THE DRAWINGS WERE MADE.*

A brief account has now been given of the most important discoveries yet made of engravings and paintings on the walls of caves and rock shelters and exposed rocks. Not the least remarkable fact regarding them is that most

[1] *L'Anthrop.*, XXIII. (1912), Figs. 21-4, pp. 22-5 ; XXIV. (1913), p. 171, Figs. 1-5. *Revue Archéol.*, XIX. (1912), p. 93. In a cave at *Oban*, and in the island of *Oronsay*, harpoons of very similar character to the Azilian have been found : cf. *Proc. Soc. Ant. Scot.*, XXIX., p. 410.

FIG. 152.—*La Mouthe.* Bottom of sandstone lamp, showing engraved head of an ibex. From a block kindly lent by *Soc. d'Anthrop. de Paris.*

of those in caves must have been executed by artificial light, and moreover sometimes in positions not easily accessible. It is difficult enough to light up the dark recesses of these caverns with modern illuminants; how much more so when a smoky torch or lamp was the only one available. Bearing on this question an important discovery was made at La Mouthe of a hollowed-out piece of sandstone which may have been used as a *lamp*. In the bottom of the cavity was carbonaceous matter which was analysed by Berthelot, who reported it to be derived from some animal fatty substance (Fig. 152). That this conjectural lamp is of Palæolithic age may be justly inferred from the position in which it was found in the floor deposit, and from its being engraved on the bottom with the head of an ibex, showing all the life and skill of the engravings on horn of this animal unquestionably belonging to that period. Moreover it resembles an engraving of the animal seen on the walls of this very cave. There is no sign of smoke on the walls, but oxidation over so long a period would account for this. Some have sought to solve the mystery by assuming man's vision in these ancient times to have been keener than it is to-day. That the mural decoration was not necessarily restricted to the dark interior of the caves is shown by the fact that in some instances the drawings are reached by daylight. At Marsoulas, for example, the engravings begin only five yards from the entrance, and the paintings some ten yards farther in: at Hornos de la Peña a few are seen in the vestibule close to the entrance, and at La Grèze they are all illuminated from the outside. Moreover it is possible that in other caves drawings may have originally existed nearer the entrance, but have been destroyed in the course of time owing to the disintegration of the wall surface through damp or other agencies.[1]

[1] For a discussion of this subject cf. *La Caverne de Font de Gaume*, chap. v.

7. *MEANING OF THE DRAWINGS.*

On contemplating these cave drawings, especially such as those at Altamira, Font de Gaume, or Marsoulas, the question involuntarily arises, Why were they done? What was the compelling motive which led these prehistoric artists to do this work, and display their talents so far from the light of day? That the elaborate series of drawings in the principal gallery of Font de Gaume, or on the roof at Altamira, were merely the result of idle hours, of mere amusement *pour passer le temps*, seems a quite inadequate explanation. It will have been noticed that the animals represented on the walls, as the mammoth, reindeer, bison, horse, deer, ibex, and wild boar, are those which no doubt were hunted, and formed the chief source of food. May not the drawings of these animals have had a magical or totemic significance associated with the idea of increasing their number or of enabling them to be more easily found and killed? There are analogous customs of the Australian aborigines which support this view.[1] In this connexion the cavern of Font de Gaume is particularly interesting and instructive, and it is not difficult to believe that its mural decoration arose out of magical or totemic beliefs, and was associated with some special ceremonies connected therewith. The unsuitability for habitation of the inner part of the cave containing the mural decoration is obvious, and there is little evidence of its having been put to such a use from the nature of the objects found in the floor deposits, though the presence of

[1] Cf. *L'Art et la Magie à propos des peintures et des gravures de l'Age du Renne*, par S. Reinach, in *L'Anthrop.*, XIV., p. 357. For a criticism of this view, see "Le problème des origines de l'art et l'art paleolithique," par G. H. Luquet, in *Revue Philosophique*, 1913, pp. 471 ff. The advocates of the theory "Art for Art's sake" are certainly entitled to ask why some of the drawings both in the caves and on objects in the floor deposits are so admirably and carefully executed. The magical theory does not seem to necessitate such excellence.

the artists is revealed by the discovery of gravers and a few pieces of ochre. In fact the conclusion seems clear that the drawings on the walls were specially made by the artists visiting this part of the cave for the special purpose of executing them, and who used that part of the cave near the entrance or some neighbouring shelter as a habitation. In this connexion it is interesting and significant to compare the celebrated grotto of Les Eyzies half a mile distant. Here whilst there is no wall decoration there is abundant evidence of its having been used as a habitation over a long period of time. Innumerable objects showing man's handiwork have been discovered, and not the least interesting and important are large quantities of ochre and several shallow stone mortars in which it could be ground and mixed for use, also shells of bivalves containing powdered ochre. In the refuse from the cave scattered on the ground in its neighbourhood pieces of yellow ochre and manganese have been found. These facts suggest the inference that the artists lived at Les Eyzies, and took their tools and paints with them to Font de Gaume when engaged in ornamenting its walls. Each particular group of animals when completed may have been connected with some special magical or totemic ceremony for the performance of which the members of the tribe resorted to the cave.

8. *AGE OF THE DRAWINGS.*

The question of the antiquity of this mural decoration naturally arises, and at first, as we have seen, scepticism was dominant. This is hardly surprising, and it may well be asked, how is it known that the drawings date back to Palæolithic times, may they not be the work of much more modern artists? The answer depends on replies to further questions concerning the nature of the cave, e.g. the closure of its entrance, the position and undisturbed

condition of the floor deposits, the character of those deposits, such as the fauna, implements, and works of art contained in them, the condition of the decorated wall surface, such as its incrustation with a covering of stalagmite. One of the most striking proofs comes from the cave of *Pair-non-Pair* in the Gironde, and the grottoes of *La Grèze* and *Teyjat* in Dordogne. Here when first explored, the undisturbed floor deposits wholly or in part covered the drawings. Careful examination of these deposits proved them to be of Palæolithic age. Obviously the drawings in these cases must be older than the material covering them. When as at *Gargas* there is no sign of Neolithic or later culture, and the entrance into the cave was closed at the time of its discovery, there can be little doubt about the age of the figures on its walls. In most of the caves in which the floors have been excavated Palæolithic deposits have been discovered, in several instances showing a stratification extending from the Aurignacian to the Magdalenian age, through the intermediate Solutrian. When as at *La Mouthe* the outlet was obstructed by such deposits reaching almost to the roof, and at *Hornos de la Peña* the narrow corridor leading to the inner part of the cavern where most of the drawings are situated was almost closed in the same way, certainty seems assured. Very convincing, if reliably interpreted, is a discovery made in the second gallery at *Altamira*. Here is a fallen frieze on which are engraved designs apparently executed before it fell. But it must have already fallen during or before the Magdalenian period, for lying on it were ochre, flints, bone tubes, awls, and polishers of this epoch. The designs engraved on the fallen rock consist of outlines of horses, of an anthropomorphic figure, and curved lines recalling those at Gargas.[1]

[1] *L'Anthropologie*, XXI., p. 129, and see *Les Cavernes de la Region Cantabrique*, p. 194, Figs. 198-201.

The nature of the drawings themselves has an important bearing on this question. The mammoth and rhinoceros, so realistically depicted in the Dordogne caves, did not survive beyond the Palæolithic period. The bison figuring so prominently at Altamira is believed to have disappeared from south of the Pyrenees before the Neolithic age. Another very significant fact is the similarity in character of the wall drawings and the engravings on bone, horn, ivory, and stone, found in the floor deposits, the antiquity of which is beyond dispute. Both show the same composition, the same realism, the same boldness

FIG. 153.—Head of deer engraved on shoulder-blade in a very definite style from Magdalenian deposits at *Altamira*.

FIG. 154.—Head of deer engraved on wall at *Castillo*.

and vigour of drawing, the same defects: in fact one cannot fail to discover a real relationship between them. In both, the vigorous realism displayed can only be attributed to artists who had lived with the animals portrayed, which include the extinct mammoth and rhinoceros. Comparison of the wall engravings with those on objects found in the same caves, combined with the careful and more detailed examination of the floor deposits, has afforded further and most interesting evidence by which the age of the mural drawings can be more accurately determined. As examples of this line of evidence may be mentioned (1) the facts already noticed when describing the cave of *Altamira*,

viz. the discovery in Magdalenian deposits of heads of deer engraved on shoulder-blades (Fig. 153) in a most definite and characteristic style, which exactly corresponds to that of engravings on the walls (Fig. 154). (2) Excavation of the floor near the entrance of *Castillo* has shown a distinct stratification of beds extending from Mousterian to Magdalenian Age. In the last a shoulder-blade was found, having on it the head of a deer engraved in a style precisely similar to that of engravings on the wall of the cave (Fig. 155). (3) At *Hornos de la Peña* a similar series of Palæolithic strata have been revealed in the floor of the narrow corridor leading to the main part of the cavern. In the Aurignacian stratum a piece of the frontal bone of a horse was discovered, having engraved upon it the hind-quarters of that animal in deep, broad, continuous line, a style truly archaic, seen in several engravings of horses on the walls of this cave (cf. Fig. 132). In these instances, therefore, there is justification for saying not merely that the wall engravings are of Palæolithic age, but for referring them to definite periods—Aurignacian or Magdalenian—of that age.[1]

Fig. 155.—*Castillo.* Engraving of deer on wall.

Further evidence is furnished by the similarity in the subjects, mode of treatment, and of execution of the drawings in caves far apart. A notable fact in this connexion is the poverty of conception and crudeness in execution representations of the human body everywhere display. There is also the similarity in some of the curious in-

[1] *La Caverne d'Altamira*, Monaco (1906), Fig. 203 (p. 272); Fig. 34 (p. 49); *L'Anthrop.*, xxiii. (1912), pp. 6-14, Figs. 7, 8, 11, 13; *Les Cavernes de la Region Cantabrique*, Figs. 89, 90 (p. 97), and Plates LIV, LVI, and LVII.

animate designs, more especially those called tectiform, and which may possibly represent the huts in which the artists dwelt. If there is no uncertainty regarding the age of the designs at *Gargas*, where the human hand is so largely depicted, the discovery of precisely similar figures on the walls of Font de Gaume, Castillo, and Altamira, is certainly an argument in favour of the designs in those caves being equally ancient.

The *age of the Spanish paintings*, like those at Calapata, Cogul, and Alpera, is not so easily settled. The presence of two figures of bison at Cogul and of an elk at Alpera is significant, and points to great antiquity. The striking similarity in subject, treatment, and artistic character of these paintings to those in the French and Cantabrian caves cannot be ignored. Palæolithic deposits are said to have been found in the vicinity of some, but their close association with them has yet to be demonstrated. The presence of the bow on several of these rock paintings is a subject of much interest, but also of some difficulty, because of its absence from the French and Cantabrian caves. It may be that it was not depicted in these owing to the paucity and crudity of the human figures so characteristic of them, or its use may have been unknown. In the latter case the explanation may be that the Cantabrian and French Palæolithic hunters represent an earlier wave of migration from the south before the bow was known; while the hunters so realistically drawn at Alpera, of the same stock, came later, and after that useful weapon had been invented or discovered.

9. *EVOLUTION OF THIS MURAL ART.*

It was noticed very early that some drawings covered others of older date. This superposition of the decorative elements is, in fact, very general in those caves where the engravings and paintings are at all numerous. It is a

feature which has been carefully studied at Font de Gaume, Altamira, and the other Cantabrian caves, with a view to discovering the order in evolution of this decorative art. Although the investigation has been renewed and revised with each considerable increase in knowledge, yet, in view of the limited scope of the inquiry, the conclusions must at present be regarded as somewhat provisional. Obviously the fine polychromes could not arise as a sudden artistic effort, but, on the contrary, must have been the result of long preceding practice and training, and attempts have been made to show the exact course of their evolution from the simplest beginnings. Inferences drawn from the superposition of the drawings in any particular cave are controlled by comparisons with analogous figures in others near and distant. The order in time of the coloured inanimate designs is sought for by similar methods. The study of the evolution of the wall engravings is further and most fruitfully assisted by comparing them with similar engravings on bone or horn found in the floor deposits, the age of which can be accurately determined. It is in this way sometimes possible to refer the wall engravings to the Aurignacian, Solutrian, or Magdalenian periods, and thus demonstrate their order in time. If an attempt is made to very briefly summarize the conclusions which the evidence at present available appears to support, it may be said :—

First of the *Paintings*, the oldest are those depicted as simple lines, often unintelligible, of colour—red, black, or yellow. Then come figures slightly modelled in black, rarely in red. These are followed by broad red lined forms and better modelled figures in black. A later stage is characterized by figures in broad black strands, and those of uniform tint all over with little or no appearance of modelling. Finally the polychromes appear. At first immature, showing only a slight combination of colour,

they are succeeded by the culmination of the Palæolithic painter's art, the beautiful polychromes so well seen at Altamira and Font de Gaume.

Secondly, with regard to the *Engravings*. Here the linear and animal designs traced in clay are of exceeding interest, because they are apparently earlier than any of the engravings on the rocky surface. We may in fact regard them as man's first efforts in this department of representative art. They may be looked upon as the prelude to engraving proper. Further it seems possible to trace, as it were, the very lispings of the art, for its first signs are mere finger marks on the clay, then come the meandering lines traced with the fingers or a pointed instrument, and lastly animal designs. The oldest of the rock engravings are executed in broad, deep, continuous lines, exactly corresponding with engraving on bone found in Aurignacian deposits of the floors. Later the lines become shallower and narrower, yet still pronounced, and may be used for simple shading in parallel lines. This style has been observed on engraved objects from upper Solutrian or ancient Magdalenian beds. Later still the lines become finer and the engraved work is much more delicate, agreeing with typical Magdalenian art and, finally, exceedingly fine lines may be so worked as to form merely a scratched or hatched surface. In some instances, e.g. the mammoths at Font de Gaume, this fine engraved work appears to have been executed upon the polychromes, in other words, was done after the paintings had been finished.

Thirdly, the *Inanimate designs*. There appears to be no doubt that the stencilled *hand designs*, so well seen at Gargas and Castillo, are the oldest. In fact they may well represent man's first efforts at ornamenting his cave with colour. The painted designs like the arm-hand figures at Santian, and the disks at Castillo and elsewhere are probably a little later. The *tectiform designs* present

some difficulty, for whilst in the Cantabrian caves they come next to the simplest signs, showing some evidence of a gradual evolution from a very primitive form to those painted all over; at Font de Gaume they are seen superposed on a polychrome figure, and would therefore appear to be amongst the more recent decorative elements. Later than the tectiform are the *Claviform*, seen at Niaux and Pindal. Latest of all come the so-called *Pectiform* found at Marsoulas and Altimara, differently interpreted as combs and stylized hands.[1]

10. *ETHNOGRAPHIC PARALLELS.*

It is interesting to compare the artistic work of these prehistoric hunters with that of existing primitive peoples living a similar kind of life. The most striking and instructive of these are the *Bushmen*, the aborigines of South Africa, a people living by the chase, and probably quite as uncivilized as the Palæolithic artists of the Dordogne and Pyrenees. Now reduced to a few thousands, living principally in the vicinity of the Kalahari desert, they formerly, before the arrival of the Bantu tribes and Boers, hunted undisturbed over the southern portion of the Continent. This is shown by the discovery of engravings and paintings on the walls of caves distributed over a wide area, formerly used by them as habitations. These drawings recall in several ways the mural decoration of the French and Spanish caves. Animal forms are chiefly represented, and often in a realistic manner (Fig. 156). The human body

[1] On the subject of the Evolution of Mural Decoration, consult *La Caverne d'Altamira*, par Cartailhac et Breuil (1906), chap. VI.; *La Caverne de Font de Gaume*, par Capitan, Breuil, et Peyrony (1910), chap. IX.; *Les Cavernes de la Regione Cantabrique*, par Alcalde del Rio, Breuil, et Sierra (1912), chap. XIV.; *Congrès Internationale d'Anthropologie*, Monaco (1906), pp. 367-86.

is also portrayed, sometimes in relation to animals so as to form a picture, the nearest approach to which in Palæolithic art are the designs on rocks in South-east Spain, as at Alpera. The Bushman engravings are executed by a slight chipping over the surface of the rock, producing a dotted appearance (Fig. 157). Recent discoveries in the Madobo Range of Southern Rhodesia are such as to emphasize still more the similarity of Bushman and Palæolithic art. In these mountains are many caves decorated with paintings of animals, among them being monkeys, elephants, giraffes,

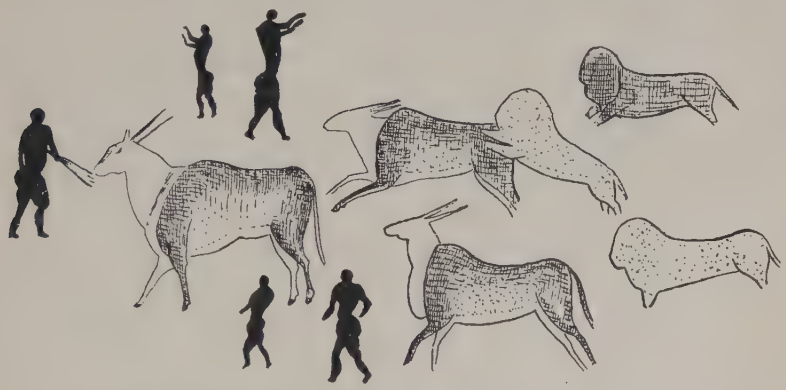


FIG. 156.—Bushman rock painting. Human figures, black. Animals, white, shades of red, and yellow. (From *Cav. d'Altamira.* After Stow.)

rhinoceros, antelopes, lions, snakes, and fish. Some of these are 8 to 10 feet long, and painted on the concave roof. Half a dozen different colours have been employed: white, yellow, red, brown, purple, and black. Shrubs, flowers, and grasses are also depicted. The human form, showing great variety of attitude and action, is by no means uncommon. A notable point is that the animal figures were sometimes engraved as well as coloured, a procedure often adopted by the Palæolithic artist.[1]

[1] *Bushman Paintings in the Madobo Range, Southern Rhodesia*, by R. N. Hall in *The Geographical Journal*, XXXIX. (1912), p. 592; cf. G. F. Stow, *The Native Races of South Africa* (1905); H. Tongue, *Bushman Paintings* (1909). *Anthropos*, VIII. (1913), pp. 652 ff. and 1010 ff., numerous plates.

In many parts of Australia the aborigines have engraved on rocks and painted on caves figures of men and animals occasionally so arranged as to form a very simple picture. Designs of hands stencilled on a white or red ground, and also impressed upon the surface, are found in many parts. Further, they ornament their implements and weapons with both engraved and coloured designs, mostly of a geometric character, it is true, though probably, sometimes at least, derived from animal forms. The same artistic

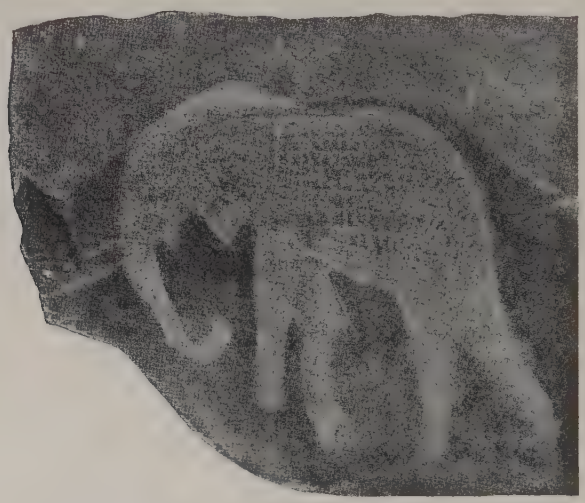


Fig. 157.—Bushman engraving. (From *Les Cavernes de la Region Cantabrique.* After L. Peringuay.)

spirit is shown in paintings on cork and leather, and in the incised and temporary coloured designs marked out on the ground in connexion with their initiation and totemic ceremonies.[1]

[1] Spencer and Gillen, *The Central Tribes of Australia* (1899); *The Northern Tribes of Central Australia* (1904); Sir Geo. Grey, *Journal of Two Expeditions* (1841); Brough Smyth, *Aborigines of Victoria*, I., p. 286; II., p. 359, Fig. 162; J. Mathew, *Jo. Anthrop. Institute*, XXIII. (1894), p. 42; R. H. Mathew, *Jo. Anthrop. Institute*, XXV., p. 145, Plate XIV, and XXVI., p. 320, Plate XXXII; P. W. Bassett Smith, *Jo. Anthrop. Institute*, XXIII., p. 324, Plates XVIII and XIX.

FIG. 158.—Eskimo engravings on ivory.

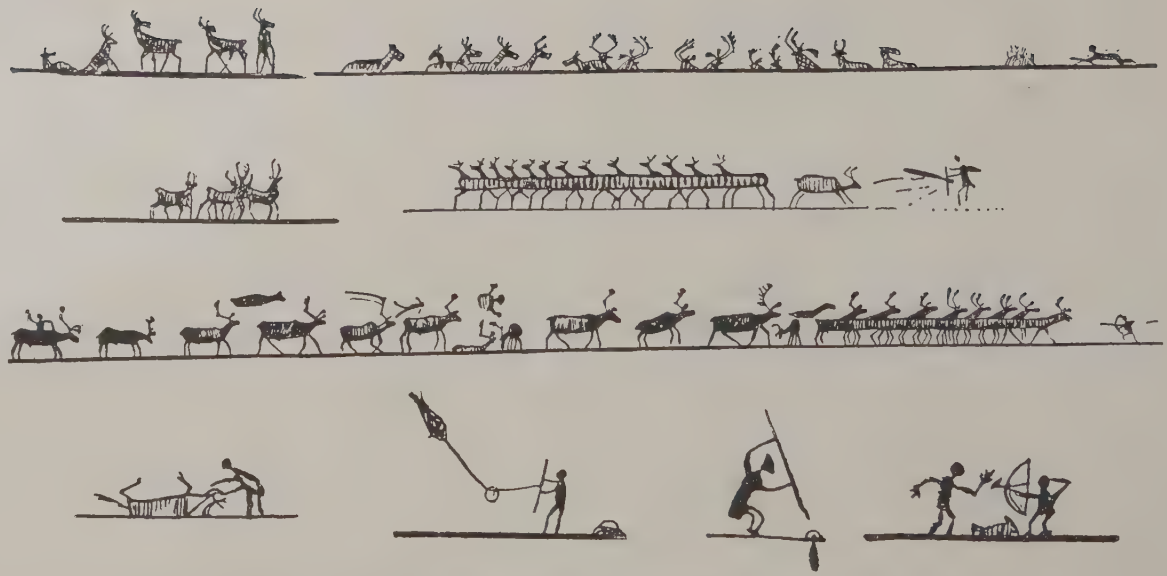


Fig. 159.—Engravings on ivory by Eskimo of Alaska. (From *La Cav. d'Altamira.* After Hoffmann.)

The *Eskimo*, and other Arctic tribes, as the *Chuckchi*, ornament their weapons with engravings of the reindeer and other animals, of men, huts, tents, sledges and boats (Figs. 158, 159). The animal forms not infrequently exhibit much realism. The Eskimo also show considerable artistic ability in their carvings of bone and ivory. Fish, the seal, whale, and bear are well sculptured in these materials.[1]

11. *ANIMALS REPRESENTED IN PALÆOLITHIC ART.*

Mammals.

Antelope (Saiga tartarica).
Bear (Ursus spelæus).
? *Polar Bear* (U. arctos).
Bison (Bison priscus).
Cave Lion (Felis spelæus).
Chamois (Rupicapra tragus).
Deer.
? *Dog.*
Elephant (Elephas)?
? *Elk.*
Fox (Vulpes lagopus).
Goat.
Glutton (Gulo borealis).
Horse (Equus caballus).
Hyena (Hyæna spelæa).
Ibex (Capra ibex).
Mammoth (Elephas primigenius).
Musk Ox (Ovibos moschatus).
Rabbit or *Hare.*
Red Deer or *Stag* (Cervus elaphus).
Reindeer (Cerv. tarandus).
Seal.
Urus (Bos primigenius).
Wild Boar (Sus scrofa).
Wild Cat (Felis catus).
Wolf (Canis lupus).

Birds.

Crane.
Duck.
Goose.
Grouse.
Penguin.
Swan.

Fish.

Pike.
Salmon.
Trout.

[1] Cf. Boas, *The Central Eskimo;* Nordenskiold, *The Voyage of the Vega;* Capt. G. F. Lyon, *Private Journal* (1824).

CHAPTER V.

THE NEOLITHIC OR NEW STONE AGE.

1. *TRANSITION FROM PALÆOLITHIC TO NEOLITHIC—THE HIATUS.*

During the Palæolithic period implements made by chipping a stone were never afterwards polished. In this apparently simple fact we have one of the fundamental differences between the Old and New Stone Ages. The polished stone axe, or *Celt*, characterizing the Neolithic age, marks a great advance in the civilization of mankind. It was of great assistance in extending man's power over nature, and thus aiding his advance in culture. What a marked advance this was is shown by the appearance of habitations of various kinds as stone huts and pile dwellings, of agriculture and domestic animals, of pottery, of megalithic monuments and great tumuli raised over the dead. Judged by the evidence at present available there appears to be a gap, a hiatus, between the two periods of the Stone Age. This may of course be more apparent than real, and be due only to our ignorance of what still lies hidden from our view, and which future discovery may reveal. In support of the reality of this hiatus the differences in the fauna of the two periods have been strongly dwelt upon, and made the more impressive by the essential similarity of the Neolithic fauna to that now existing. Further, that in the Neolithic period Britain had become separated from the Continent by the Channel much

as to-day. On the other hand the existence of the hiatus is directly challenged and is said to be bridged by evidence from several different sources, e.g. the stratified layers forming the floors of certain caves, and deposits elsewhere as in the Somme valley and in the South of England.[1] A candid and impartial study of this evidence will hardly admit that it settles the question. The most striking example, and one which best bears critical examination, is the series of strata revealed by M. Piette's careful excavations in the cavern of Mas d'Azil. Not the least interesting of his results is that pointing to a transition period, the so-called *Azilian*, in which the reindeer disappears, its place being taken by the stag. The existence of a similar cultural stage on several other widely distributed sites certainly suggests the beginning of the bridge which may ultimately be sufficiently extended to cross the hiatus. Whilst in the past too much importance may have been attached to differences in the fauna, there is to-day an element of danger in the tendency of some enthusiasts to base classification purely on the form of stone implements. Sometimes it has perhaps not been sufficiently remembered that contiguity is not necessarily continuity.

2. *STONE WORKING.*

Compared with the very long and slowly changing Palæolithic period, the New Stone Age was no doubt a

[1] E. Piette, *L'Anthropologie*, II., pp. 115 and 141 ; VI., p. 276 ; VII., p. 385 ; "Passage du Paléolithique au Néolithique," par L. Capitan ; *L'Anthropologie*, XII., p. 354 ; "Chronologia et Stratigraphie de l'Industrie Proto-historique, Neolithic et Paléolithique, dans la vallée de la Somme," par V. Commont, in *Congrès Internat. d'Anthrop.* (1912), p. 239 ; J. Allen Brown, "Continuity of the Palæolithic and Neolithic Periods," in *Jo. Anthrop. Inst.*, XXII., p. 60. For a detailed account of the evidence on the subject, cf. Munro, *Palæolithic Man and Terramara Settlements in Europe* (1912), chap. XI.

period of great activity. The general all-round advance in culture shows that this must have been the case. With so many outlets for his energies, we need perhaps hardly be

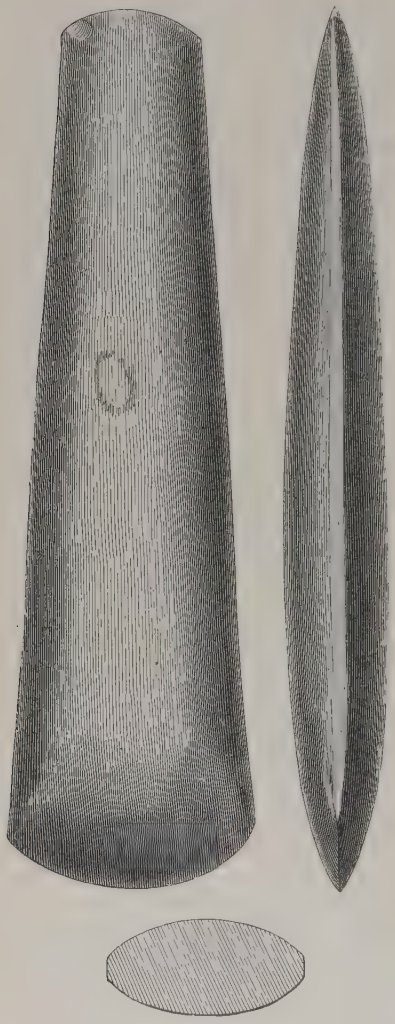


Fig. 160.—Polished celt. Gilmerton, E. Lothian.

Figs. 161, 162.—Arrow heads. Yorks, Wolds, and Overton, Wilts.

surprised at finding so little evidence of any great artistic progress by Neolithic man. Indeed in the representative

arts he is inferior to the Palæolithic hunters who decorated the caves of South-west France and Northern Spain. All signs of the beautiful Magdalenian art have disappeared. In the working of stone to make his tools and weapons

FIGS. 163, 164.—Spear-heads. Winterbourne Stoke. (Natural size.)

FIG. 165.—Scandinavian stone dagger. Hindsgavl, Funen.

there was however, on the whole, considerable advance. As already mentioned he had learnt to polish his stone implements. In the characteristic implement of the period, the axe or *Celt*, all the stages of this polishing can be observed from those with a small surface at the edge only,

to beautifully-finished instruments finely polished all over (Fig. 160). But also by chipping and flaking he was now able to give them a wonderful beauty and finish. The excellence attained in this art of stone working is seen

Fig. 166.—Scandinavian flint knife. Denmark

in the *Arrow* (Figs. 161, 162), and *Spear Heads* (Figs. 163, 164), *Knives*, and *Daggers* (Fig. 165) so characteristic of this epoch. The finest examples of knives, such as some found in Scandinavia (Fig. 166) and Egypt (Figs. 167, 168) are remarkable works of art. These have blades so thin as to approach modern ones of metal, the edge being produced by a series of such regular parallel flakings as to make one marvel how the work could possibly have been accomplished without breaking the stone. Nothing comparable to it has been produced in historic times. The manual dexterity required, and the judgment and taste directing it may, without affectation, be favourably compared with those of the painter and sculptor. Egypt affords other interesting examples of prehistoric stone working in *vases* formed of hard materials like limestone, alabaster, porphyry, and basalt. Although

Fig. 167.—Egyptian flint knife. (After Capart.)

made without the wheel they are regular in shape. The working of these hard materials was probably aided by the use of emery.[1] Personal ornaments were sometimes made of stone. *Bracelets* manufactured from pieces of flint have been found in Egypt,[2] and from marble and schist at the Neolithic station of Cabez de la Reja de Otego in South-east Spain. The Petunculus shell was

Fig. 168.—Stone knife from Egypt.

used for a similar purpose at Palaces, another site in the same part of the Peninsula.[3] Small perforated pieces of stone, probably pendants or amulets, were among the stone objects discovered at the lake settlement of Robenhausen in Switzerland.[4]

3. *NEOLITHIC POTTERY.*

As already mentioned a feature distinguishing the Neolithic from the Palæolithic culture is the manufacture of pottery. The significance of this as evidence of man's advance is well expressed in a remark of M. A. Brogniart that to make, even with the most tractable clay, a vessel which will stand air and fire, and will be serviceable only after being subjected to their action, requires more care, observation, and reflection, than the fashioning of implements and garments from wood, bone, and skins, for these

[1] *Diospolis Parva*, chap. III.; Capart, *Primitive Art in Egypt*, p. 95.

[2] Newbury and Garstang, *History of Egypt*, p. 9.

[3] H. and L. Siret, *Les premières ages du metal dans Sud-Est Espagne*, Plates I and IV.

[4] Munro, *Lake Dwellings of Europe*, p. 114, Fig. 24 (3), (5), (6).

materials give the worker an immediate return for his labour.[1]

Knowing how to make pottery, Neolithic man was possessed of a new field for the play of his artistic faculties. In considering this phase of man's early culture, we are however faced with a difficulty. So far as the material is concerned, and its form and decoration, it is sometimes impossible to differentiate Neolithic pottery from that of later date. This especially applies to Britain where pottery of this age is anything but plentiful. We are therefore thrown back on the situation and surroundings in which it is found. Consequently it is of the first importance to have certain evidence regarding these. It is undeniable that in many cases such evidence is not forthcoming, and definite statements sometimes made regarding the age of pottery are highly conjectural. To bring the question to an issue we may ask, What are unquestionably Neolithic sites? We will select three generally admitted to be such, viz. the Long Barrows of Britain, the oldest Dolmens, and the earliest Lake Dwellings. The *Long Barrow* in Britain is by almost unanimous consent regarded as a characteristic product of the New Stone Age. Pottery with geometric ornamentation has been reported from English Long Barrows, as from that of West Kennet, in Wiltshire; yet a very high authority has gone so far as to say that the Long Barrows of Britain are characterized by an absence of pottery.[2] And the extremely careful exploration of Wor Barrow by General Pitt Rivers showed that notwithstanding the large quantity of pottery in the trenches, none whatever was discovered with the primary interment within the Barrow itself: a characteristic, he observes, of common occurrence in Long

[1] *Traité des Arts Céramiques*, p. 2.

[2] Greenwell, *British Barrows*, p. 508.

Barrows of the Stone Age.[1] Referring to the twenty-eight known Chambered Long Barrows in Britain, Dr. Thurnam remarks on the paucity of manufactured articles of all kinds being very remarkable, but he was inclined to explain it, partially at least, as due to their having been so generally rifled. In the apparently intact chamber of Rodmarton Long Barrow, in Gloucestershire, the debris of a vessel of very coarse pottery, nearly black, were found. It is identical in fabric with the vase from the un-

Fig. 169.—Vessel from Norton Bavant, Long Barrow, Wilts. (Two-thirds size.)

chambered Long Barrow of Norton Bavant, in Wiltshire (Fig. 169). When removing from this barrow, in 1866, a number of skeletons, Dr. Thurnam found embedded among them the greater part of a thin curious vase of a wide-mouthed semi-globular form with rounded bottom, "there are two ear-shaped handles projecting from below the rim, and the vessel when complete would have held perhaps two pints. The paste is lighter in colour than that of the fragments from Rodmarton, but like them is studded with white

[1] *Excavations at Cranbourne Chase*, iv., p. 62.

fragments of shells. There is no trace of ornamentation."[1] It is also singular that no pottery was found in some of the largest *chambered tumuli of Brittany* though common enough in others. For example the Tumiac tumulus which contained thirty polished stone axes, and 300 beads, mostly of jasper, and the great tumulus of Mont S. Michel, at Carnac, in which were discovered thirty-nine axes of jade and trenolite, with beads of jasper and bone.[2] The *Scandinavian Chambered Tumuli* afford a striking contrast, e.g. in the tumulus at Magleby, in the island of Moen, Denmark, with flint implements and many amber

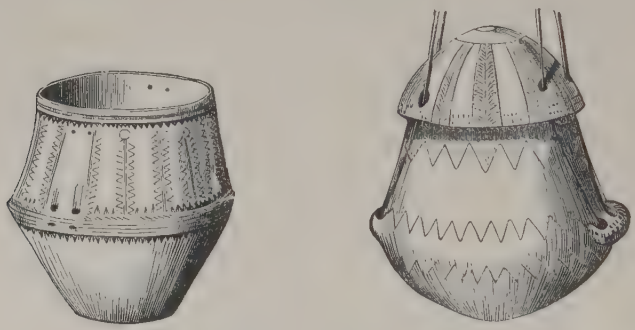


Fig. 170.—Danish Neolithic pottery.

beads were no less than twenty urns decorated with points and lines, and with several skeletons in a tumulus at Hammer in Zealand, were many flint implements, amber beads, and numerous urns of flowerpot shape, and bowls, some for suspension, ornamented with markings, scratched, pressed, or engraved (Fig. 170).

In Scotland several *chambered cairns* have yielded pottery. At Ahnacree, in Argyllshire, a complete vessel 4 inches high was recovered. It has a broad flattened rim recurved below, and is round bottomed; it is un-

[1] "Ancient British Barrows," *Archæologia*, xlii., p. 195, Fig. 4.

[2] Closmadeuc, "La Céramique dans les Dolmens de Morbihan," *Rev. Archéol.*, i., p. 257, Plates.

ornamented (Fig. 171). At Largie, Kilmarton, in the same county, a wide-mouthed, round-bottomed urn, $6\frac{1}{4}$ inches high, of fine, dark-coloured, hard-baked paste, has its whole surface ornamented with vertical flutings which meet in the centre of the rounded bottom (Fig. 172). At Unstan, in

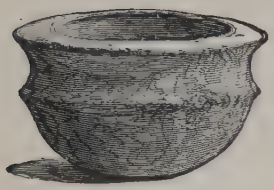


Fig. 171.—Neolithic vessel. Ahnacree, Scotland.

Fig. 172.—Neolithic pottery. Largie, Scotland.

Orkney, several urns were found varying in diameter from $9\frac{1}{4}$ to $15\frac{1}{2}$ inches. Some of them are well made of dark-coloured, hard-baked clay. In some the paste is reddish in colour. All of them are similarly ornamented, and on the rim only, with shaded zig-zags (Fig. 173). In Caith-

Fig. 173.—Neolithic bowl. Orkney.

ness and Sutherland similar pottery has been discovered in several chambered cairns.[1] It will be observed that these vessels, like that from Norton Bavant, are round bottomed,

[1] J. Anderson, *Scotland in Pagan Times—Stone Age*, Lecture V, Figs. 261-3, 274-9. Figs. 171-3 are taken from this work.

a feature which has been regarded as a Neolithic characteristic. Similar round-bottomed ware has been recovered from the Thames (Fig. 174) at Mortlake and Wallingford, and found in Derbyshire, the East Riding of Yorkshire, and elsewhere. An attempt has been made to show that the Bronze Age food vessel was a later development of this Neolithic form.[1]

Fig. 174.—Neolithic pottery. Thames.

It is from the *Round Barrows* that pottery has been chiefly obtained in Britain, and at least the greater part of it is referable to the Bronze Age, some no doubt to a very early period of that epoch. In fact the oldest form of ceramic from these barrows is the so-called *Drinking Cup* which few venture to date earlier than the beginning of the Bronze Age.[2] It will be considered when we come to that period. From the variety of its shape, the thinness of its ware, and the character of its ornamentation, it cannot be a very primitive form, and must therefore have been preceded by earlier and simpler products of the potter's art, unless, indeed, as is not improbable, it was an importation from the Continent.[3]

Apart from the few vessels recovered from chambered barrows and cairns, there is little conclusive evidence of

[1] *Archæologia*, LXII., p. 340. "The Development of Neolithic Pottery," by R. A. Smith. This view is endorsed by Mr. Abercromby, *Bronze Age Pottery*, I., p. 26 *n.*, and the gradual evolution is traced by Mr. Coffey in his *Bronze Age in Ireland* (1913), Plate XI.

[2] Bateman, *Ten Years' Diggings*, p. 285; Abercromby, *op. cit.*

[3] Abercromby, *op. cit.* The Drinking Cup is placed by Pitt Rivers in his No. 3 class of British pottery, being preceded by qualities Nos. 1 and 2. This classification is based on the relative coarseness of the ware, and its position in the strata excavated; see *Excavations at Cranbourne Chase*, IV., p. 29.

Neolithic pottery in Britain. Very little, if any, has been obtained from *Dolmens*. In fact the more the subject is investigated, and the evidence carefully weighed, the less certain and satisfactory does the answer become regarding the Neolithic pottery of Britain when judged by the test of the site of its discovery. That pottery crude in form, composed of material coarse from admixture of sand, stone, and shell, and imperfectly baked—in other words, of a very primitive make—is found is beyond dispute, but that such ware was also produced in the Bronze Age is equally undoubted. This test is alone insufficient, and until more satisfactory evidence is forthcoming regarding the provenance of such ware, dogmatic statements, sometimes made respecting some British pottery, must be received with caution.

The *Dolmens of Brittany*, certainly among the earliest of these megalithic structures, have yielded pottery of characteristic form, the so-called *Calyciform Vessel*. This type is also found widely distributed in France, Spain, and Central Europe (Fig. 175). Both in their shape and ornamentation these vessels recall one form of the Drinking Cup of the Round Barrows of Britain, and not improbably there is some connexion between them. Horizontal bands, composed of incised lines and dots, cover nearly the whole surface of the vase.[1]

Some Continental archæologists in their endeavour to classify Neolithic pottery have introduced a division of *Corded Ware*,[2] i.e. vessels ornamented by pressing a cord

[1] P. du Chatellier, *Poterie aux Époques préhistoriques et gauloises en Armorique*. Closmadeuc, *op. cit.* *La France préhistorique*, p. 262. L. Siret, "Orientaux et Occidentaux en Espagne aux Temps préhistoriques," and "L'Espagne Préhistorique," in *Rev. Quest. Scientif.* (1893). Cf. Abercromby, *op. cit.*, Plates I-III.

[2] Cf. A. Gotze, "Über die Glidderung und Chronologie der jungersen Steinzeit," in *Zeitschrift für Ethnologie* (1900), p. 259.

in different ways upon the clay before it is baked. Ceramic of this nature is diffused over a wide area on the Continent, from Southern Germany and Switzerland to Russia. Pottery ornamented in this manner is by no means uncommon in Britain, but it is principally found on vessels

Fig. 175.—Calyciform vessels. (1) and (3) Carnac. (2) Basses Pyrenées. (4) Sicily. (5) Bohemia.

ascribed to the Bronze Age. In fact this form of ornamentation is not unfrequently seen on cinerary urns of the Bronze Age, and therefore not even of its earliest period. Another class of Neolithic pottery distinguished by Continental archæologists is the so-called *Banded Ware*

(Fig. 176). This is distributed over the whole of Western and Central Europe to the Balkans and even beyond. It is unknown in Britain. It must be admitted that many of the forms included in this classification are anything but primitive, and must have appeared long after the first efforts of the Neolithic potter. It throws little light on the origin and primitive forms of Neolithic pottery.

Fig. 176.—Banded ware with spiral ornament.

The most uncommon and obscure of all the characteristics of Neolithic pottery is associated with this banded ornament, for it sometimes assumes a *spiral* form. Stations held to be Neolithic, as Butmir in Bosnia[1] (Fig. 177), Gross-

Fig. 177.—Neolithic pottery with spiral ornament. Butmir.

gartach in Würtemberg,[2] Lengyel and Tordos in Hungary,[3] villages in Thessaly,[4] Bilèze and Horodnica in Eastern

[1] *Die Neolithische Station von Butmir bei Sarajevo in Bosnia* (1895-8), Vol. I, Taf. V; Vol. II, Taf. VIII.

[2] *Das Steinzeitische Dorf von Grossgartach*, von A. Schliz (1901), Taf. IX.

[3] M. Hoernes, "Die Neolithische Keramik in Österreich," in *Jahrb. d. k.k.c. com. f. Erforsch. u. Erhalt. d. kunst* (Wien), 1905, p. 2; cf. *Zeitschrift f. Ethn.* (1903), p. 438.

[4] "Prehistoric Villages in Thessaly," by R. C. Bosanquet, in *Man* (1902), 76.

Galicia, and others in Southern Russia[1] have yielded pottery with spiral ornament. The presence of these designs on Neolithic pottery in the Balkan area and Southern Russia raises the question of the origin and spread of the spiral as a decorative motive, and its relation to one of the chief characteristics of Mycenæan ornament. It must either have arisen independently in these regions, or have been transmitted from the Ægean area. This raises the further question whether a phase of art characteristic of the Bronze Age could pass from one community to another without a knowledge of metal accompanying it, a view which finds high favour with at least one distinguished archæologist.[2] It is conceivable that certain forms of pottery might obtain a great vogue, and become widely dispersed without bronze accompanying them. It has been suggested for example that the calyciform vessel was widely dispersed from a limited area.[3] Associated with this spirally ornamented pottery on several of the sites mentioned are crude clay figurins similar to those formed in such numbers at Hissarlik, and to the stone statuettes in premycenean graves in the Ægean Islands[4] (Fig. 178). At the Neolithic station of Cucuteni, near Jassy, in Rumania, such figurins are ornamented with curious incised geometric designs[5] (Fig. 179).

With regard to the *Lake Dwellings*, it is among those

[1] M. Zabrowski, "Industrie Egéenne ou Prémycénienne sur le Dniester et le Dnieper," *Bull. Soc. d'Anthrop.*, Paris (1900), p. 481; cf. Fimmen, *Zeit und Dauer der Kretische-Mykenische Kultur* (1909), and Hoernes, *loc. cit.*

[2] S. Müller, cf. his *L'Europe Préhistorique.*

[3] Cf. L. Siret, "L'Espagne Préhistorique," in *Rev. Quest. Scient.* (1893), p. 511.

[4] C. Blinkenberg, *Soc. Ro. Antiq. du Nord* (1896), "Antiquités prémyceniennes," Figs. 1, 4, 6.

[5] "Tordos," *Zeits. f. Ethnol.* (1903), p. 466, Figs. 44, 45.

in the eastern part of Switzerland and beyond that we must seek for the earliest settlements. The fact that the same site was often occupied by successive settlements makes it difficult sometimes to determine the age of the pottery found in them. At *Robenhausen*, near Lake Pfaffikon, by common consent a Neolithic settlement, only pottery of a very simple character occurs (Fig. 180). At *Schussenried*, on the Federsee in Würtemberg, on the other hand also held to be of Neolithic age, ware with even elaborate ornamentation has been found (Fig. 181). The

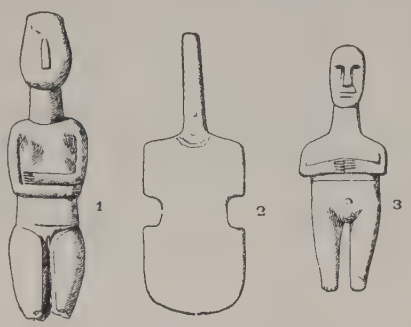


FIG. 178.—Premycenean stone figures from the Ægean. (1) Amorgos. (2) Kimolos. (3) Oliaros.

FIG. 179.—Clay figurins with incised designs. Cucuteni.

ornamentation consists of dots, lines, zigzags, and chevrons, sometimes so combined as to produce quite elaborate designs [1]

[1] Munro, *Lake Dwellings of Europe*, p. 148, Figs. 34, 35. A classification of the Neolithic pottery of Central Europe has been suggested by

From a lake settlement at *Mondsee*, in Upper Austria, comes pottery with incised designs inlaid with a white material (Figs. 182, 183). Pottery ornamented in the same way was discovered at *Laibach*, in Carniola (Fig. 184). Clay figures crudely representing the human form were also found on this site. Two of them are ornamented with incised designs strikingly suggestive of an embroidered

Fig. 180.—Pottery from Lake Dwelling of Robenhausen. (Quarter size.)

Fig. 181.—Pottery from Lake Dwelling of Schussenried, Federsee. (One-third size).

garment[1] (Fig. 185). Although a few copper and bronze objects have been found in both these stations, yet from the general character of the relics with which they are

Hoernes based on the character of its ornamentation—(1) *Peripheric*, and earlier, ornamented over the whole surface; (2) *Tectonic*, and later, in which the ornament is displayed only on divided-off spaces, cf. *Congrès Internat. d'Anthrop.*, Monaco (1906), p. 341.

[1] Munro, *op. cit.*, Fig. 195 (5) and (6). These and other illustrations from *The Lake Dwellings of Europe* I owe to the kindness of Dr. Munro.

(Quarter size.)

(Half size.)

FIGS. 182, 183.—Pottery from Lake Dwelling at Mondsee, with white filled incised designs.

FIG. 184.—Pottery from Laibach, with white filled incised ornament. (Half size.)

FIG. 185.—Clay figures. Laibach. (Quarter size.)

associated, they are regarded as being essentially of the Stone Age.[1]

4. *POTTERY WITH WHITE FILLED INCISED DESIGNS.*

Pottery, ornamented with incised designs filled with white material, has been discovered at the Neolithic village of Grossgartach in Würtemberg,[2] at Butmir in Bosnia,[3] Jablanica in Servia,[4] and Lengyel and Tordos in Southern Hungary;[5] from Neolithic sites in Thessaly;[6] also on calyciform vessels from Neolithic burials in Spain.[7] Pottery,

Fig. 186.—White filled incised pottery. Hissarlik.

ornamented in the same way, was found by Schliemann in the earliest prehistoric city of Hissarlik[8] (Fig. 186). Pottery recovered from the Neolithic deposits beneath the palace of Knossos in Crete was described by Sir A. J.

[1] Cf. Munro, *op. cit.*, p. 514.

[2] A. Schliz, *op. cit.*, Taf. I and II.

[3] *Die Neolithische Station von Butmir* (1895 and 1898), Taf. V and X.

[4] *L'Anthropologie*, XII. (1901), p. 527, Fig. 12.

[5] Hoernes, "Die Neolithische Keramik in Österreich," *loc. cit.*

[6] *Prehistoric Thessaly*, by Wace and Thompson, pp. 29, 31, Figs. 9, 10.

[7] L. Siret, *Rev. Quest. Scientif.* (1906), p. 528; G. Bonsor, *Rev. Arch.* (1899), p. 313, Figs. 217-20.

[8] *Ilios*, Figs. 28-32; Schuchhardt, *Schliemann's Excavations*, Figs. 18-21.

Evans as being identical with that from Hissarlik. Dark polished ware with simple linear designs, showing sign of being filled with some chalky material.[1] In Egypt this kind of pottery occurs in predynastic graves, and at Abydos in those of the first dynasty. It is, however, in much less quantity than other Egyptian prehistoric ware consisting of well-made tasteful vases with black mouths, and yellow vessels with red designs of boats.[2] Similar ware has been found in pan graves of Lower Nubia, attributed to the XII dynasty, but they are probably of much earlier date.[3]

The study of pottery from Neolithic stations all over Europe shows that this method of ornamentation with white filled incised designs is of comparatively rare occurrence. In addition to the sites already mentioned are (with some doubts as to its Neolithic age) Stentinello and Matreusa in Sicily,[4] and Bahia in Malta.[5] This ceramic is of interest for two reasons. It is the earliest form of coloured ornamentation of pottery,[6] and although uncommon in Neolithic times, was yet widely distributed. As

[1] *Ann. Brit. Sch. Athens*, VI. (1899-1900), p. 6.

[2] Petrie, *Nagada and Ballas*, p. 13, Plate XXX; *Diospolis Parva*, p. 14, Plate XIV; *Methods and Aims of Archæology*, Fig. 61, p. 161.

[3] Cf. Weigall, *Report on Antiquities of Lower Nubia* (1907).

[4] T. E. Peet, *Stone and Bronze Ages in Italy*, pp. 130 and 134, Fig. 45.

[5] R. M. Bradley, *Malta and the Mediterranean Race*, p. 146, Fig. 34.

[6] Messrs. Wace and Thompson found painted pottery on Neolithic sites in Thessaly—a remarkable and important discovery. But the absence of metal there does not altogether preclude the possibility of this technique having reached these sites from the Ægean region. It raises again the question already alluded to, whether a phase of Bronze Age culture can pass without bronze accompanying it. They moreover assign a very late date to these Neolithic settlements, viz. L.M. III. or about the fourteenth century B.C. Cf. *Prehistoric Thessaly*, by A. J. B. Wace and W. S. Thompson, p. 27, Figs. 6, 20, and 22.

we have seen it is encountered in Egypt, Asia Minor, Crete, Malta, Sicily, and Spain, that is round a great part of the Mediterranean. Also in Thessaly, the Balkan area, and extending to the Eastern Swiss Lake Dwellings. The discovery of its origin may be anticipated in some part of the Mediterranean basin, and this may possibly throw light on the movements and relations of the Neolithic population of Southern Europe.

5. *EVOLUTION OF NEOLITHIC POTTERY.*

If in the imperfect state of our knowledge an attempt were made to generalize on the subject of Neolithic pottery, it might be said that the facts are in harmony with the following conclusions: The art of the potter was a discovery of the Neolithic Age, and the first stages in the evolution of that art are dimly discernible.[1] The earliest ware is hand-made and imperfectly baked, the material coarse from the admixture of sand, stone, and shell. The forms are simple, round-bottomed and ill-designed, and there is no attempt at decoration. They are quite plain, though perforated knobs were soon added. The first improvements were made on the smaller vessels which are generally finer, and the surface may be smoothed, blackened, and even polished. The forms then become more varied and tasteful, and handles take the place of perforated knobs. The ornamentation consists in undulations of the surface, of finger-nail marks, cord impressions, simple geometric designs composed of dots and lines in combination which may cover nearly the whole surface of the vessel, and in some instances attain considerable elabo-

[1] The statements occasionally made that pottery has been found in Palæolithic deposits (curiously enough those of Aurignacian age being most favoured), will naturally be received with much scepticism, and absolutely unquestionable proof of the age and undisturbed condition of such deposits be demanded, before being accepted.

ration. Even colour decoration was reached in some regions as Egypt, Southern Russia,[1] and Thessaly.[2] The incised lines are on a few, but widely distributed sites filled with a white substance, and spiral ornament occurs in a limited number of stations scattered over the Balkans and South-east Russia.

In one or two places it appears possible to trace some of the steps of development from the simple unornamented to a more elaborate ware. Two illustrations may be given, one from South-east Spain, the other from Crete. At the Neolithic settlement of *El Garcel*, near the Rio de Antes, in the south-east of the Iberian Peninsula, H. and L. Siret found a vessel of an extremely simple character. They remark that it is difficult to imagine one of a more primitive nature, and the ware showed exactly how the Neolithic potter had handled the clay with his fingers and thumb. On another Neolithic site in the same district—*Tres Cabezos*, the pottery was plain and coarse, and the baking very unequal. Only one fragment suggested ornamentation. At *Gerunda*—one of the same group of settlements—the material used had little stones in it but was well baked, red or black in colour, and ornamented with incised points and lines. At *Campos* a vase with incised chevron-like ornament had the lines filled with a white or black material. The presence here of copper implements points to the close of the Neolithic period.[3]

Crete affords a more instructive example, because there the stages are inferred from observations made on the same site, viz. at Knossos (Fig. 187). Beneath the palace is a Neolithic stratum some seven or eight yards thick. The lowest deposits of this stratum contained pottery showing no signs of incised ornament, though it was more or less burnished. "All the fragments have a sooty grey im-

[1] Zabrowski, *loc. cit.*, p. 451. [2] Wace and Thompson, *op. cit.*

[3] *Les Premières Ages du Metal en Sud-Est Espagne*, Plate I, Figs. 63-121; Plate III, Fig. 38; Plate X, Fig. 78.

perfectly sifted clay, which, in the case of the coarser kinds of ware, is impregnated with sand particles or pounded stone dust. There is no trace of potter's oven or wheel. The vessels being wide-mouthed are usually hand polished both inside and out." Above this deposit incised ware begins to appear, but very gradually, and then increases more and more in quantity. About the middle of the Neolithic stratum the incisions are found in some specimens to be

Fig. 187.—Neolithic pottery from Crete. (After Lagrange.)

filled with white material, and henceforth this white filled incised ware continues up to the end, or nearly so. Here the presence of this form of decoration becomes of much interest, for it is the very beginning of the colour decoration of pottery, which on this site was to attain, in after times, so brilliant a development. It is for this reason that the study of what superficially appears simple and unimportant, becomes from the point of view of decorative art, so significant. At the same time that the white filled

incised ware appears, another development of a different kind is seen. In the lowest beds the plain ware is more or less burnished ; at this later stage a device was invented to increase its lustre. This consisted in undulating the surface, thereby producing what has been aptly termed *Ripple Ware*. After its first appearance this form of ceramic continues throughout all the rest of the Neolithic stratum. This curious Neolithic decorative motive is not without interest in relation to subsequent colour decoration of pottery from the same site. Vessels in the succeeding Bronze Age with a lustrous brown-black glaze on a buff clay slip ground, recall very strikingly the Ripple ware. The white filled incised ware in like manner foreshadowed later vases decorated with white paint on a dark ground, and showing similar geometric designs. Further, the forms show a development, for in the upper Neolithic layers, cups and bowls of finer ware appear in great numbers, to some extent forestalling forms of the succeeding Bronze Age.[1]

6. *ENGRAVINGS ON STONE.*

Engravings are to be seen on stones forming the supports of dolmens which with some confidence may be referred to the Neolithic period. They are not uncommon in Brittany, especially in the Morbihan. The most famous are those on the standing stones of the *allée couverte* on the island of Gavr'inis, in the Morbihan Gulf. Twenty-two out of twenty-nine of these stones are engraved. The designs are remarkable for numerous series of concentric semicircles and even the *spiral* is present (Fig. 188). The axe is also represented. The axe is also seen with its handle on the dolmens of Table des Marchands (Fig. 189 (1)) and Mané-er-Hroeck (Fig. 190) at Lochmariaquer. Among

[1] D. Mackenzie, "Pottery of Knossos," *Jo. Hellenic Studies*, XXIII., pp. 157 *seq.*

the designs engraved on the megaliths of Pierres Plates (Fig. 188 (2 and 3)) and Mané-Lud in the same neighbourhood, is a kind of cartouche enclosing circles with a dot in the middle. A support of the dolmen of Petitmont, at Arzon in Morbihan, is engraved with curved lines, and designs resembling the human foot.[1] There has been much discussion and speculation as to the meaning of these mysterious designs. M. Déchelette sees in the cartouche designs of Pierres Plates and the concentric

Fig. 188.—Engraved designs on standing stones at Gavr'inis.

circles of Gavr'inis a gradual degradation of the human features.[2] A novel interpretation has been offered by MM. Le Rouzic and Keller. They suggest that the numerous parallel axe-like designs on the great support of the Table des Marchands are heads of barley, and the large axe-like designs here and at Mané-er-Hroeck represent carts.[3]

[1] Cartailhac, *La France Préhistorique*, chap. XIII., Figs. 97-100, 102; Closmadeuc, *Sculptures lapidaires et signes gravés des dolmens dans la Morbihan* (1873); Mortillet, *Musée préhistorique*, Fig. 581.

[2] *L'Anthropologie*, XXIII., p. 29 ff.

[3] *La Table des Marchands—Lochmariaquer*, Nancy (1910).

Allied to these engravings are the so-called *Cup markings* on stone. These are widely distributed from Finisterre in France to Ross-shire in Scotland. At Baker's Hill in that county, and elsewhere in Scotland, also in several

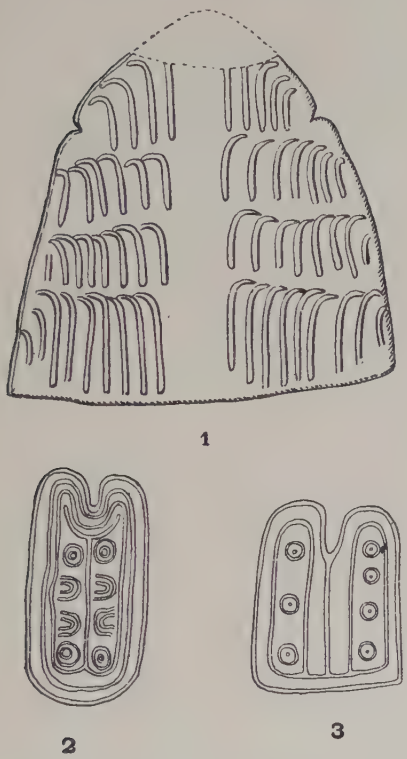


FIG. 189.—Engraved designs on stone. (1) Table des Marchands. (2 and 3) Pierres Plates.

FIG. 190.—Engraved slabs. Dolmen of Mané-er-Hroeck.

localities in the north of England, these curious impressions are met with.[1] Sometimes the incised design takes the form of a series of concentric circles with a dot in the middle—the so-called "dot and circle" or "cup and circle"

[1] Simpson, *Archaic Sculpturings* (1867). Cf. *La France Préhistorique*, Figs. 103-9; Romilly Allen, *Celtic Art*, p. 59.

—well seen at Ilkley in Yorkshire. Along with some of these designs Sir J. Simpson records representations of the human foot. Many different theories have been propounded to explain these curious markings, e.g. that they were maps of the localities in which they are found, or a primitive form of writing; or they represent constellations or games. Since the enlargement of our knowledge of the social organization of the Australian aborigines, especially of the Arunta tribe, largely due to the researches of Messrs. Spencer and Gillen, the view has been favoured that these designs have a magical or totemic significance, and in fact correspond to designs made by these people on rocks, and on their sacred stones, or *churinga nanja*. The presence of the "dot and circle," and foot designs are cited in support of this view.[1] Cup-like depressions on stones of dolmens in Spain have been described by L. Siret who attributes them to the Neolithic period, and considers they were made for the collection of water.[2]

7. *SCULPTURE IN STONE.*

Crude stone carvings of the human face and bust associated with caves and megaliths, and attributed to Neolithic times, have been discovered in Marne and other parts of France. In a grotto, or rather the vestibule of a grotto, at Courjeonnet, in that department, on the wall is a carving suggesting the human face in the crudest possible form. The nose and brows are the only facial features shown. Below it is what may be meant for a necklace with a large

Fig. 191. — Courjeonnet. Stone.

[1] J. D. Astley in *Jo. Anthrop. Institute*, XLI. (1911), p. 83.

[2] "L'Espagne Préhistorique" in *Rev. Quest. Scientif.* (1893), p. 542, Fig. 271.

bead in the middle, and beneath this is an axe in its handle[1] (Fig. 191). On the wall of a cave at Coizard, in the same district, a similar carving is seen. It is an improvement on the preceding for the eyes are indicated by black spots. Below the necklace, the large centre head of which is coloured yellow, the breasts are indicated. In another cave at Coizard, a wall carving shows the nose, but not the eyes (Fig. 192). The mouth, however, is unmistakable, and the necklace below is composed of four rows. More interesting are sculptures in sandstone in Aveyron; the so-called *statues-menhirs*. At Pousthomy

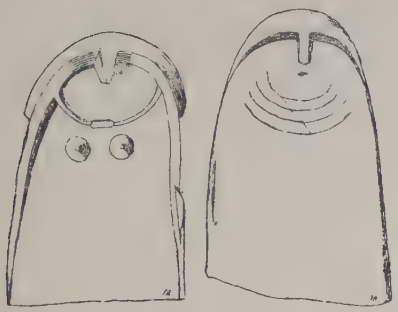


FIG. 192.—Coizard. Stone.

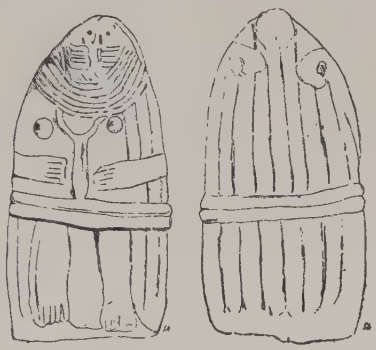


FIG. 193.—Statue-menhir. Saint Sernin.

and Saint Sernin, in that department, are slabs of stone carved to represent arms and hands and a band across the body, below which are the feet, though it has been suggested that they represent fringes of a scarf! The Saint Sernin example shows the eyes as holes, a wide necklace, and the breasts below it. There are also four horizontal parallel lines on each side of the face, possibly tatoo-markings. The mouth is not indicated (Fig. 193). The hands lie across the front of the body recalling premycenean stone figurins of the

[1] J. de Baye, *Archéologie Préhistorique* (1888), Figs. 9, 11, 12; *La France Préhistorique*, Figs. 104 (5), (6); S. Reinach, *La Sculpture en Europe avant les influences Gréco-Romaines*, Figs. 13-5.

Ægean Isles. In neither of the two carvings at Pousthomy is the head represented. These extremely crude sculptures are, as M. S. Reinach has pointed out, really statues, for the stones are also worked on the back. The parallel vertical lines on the back of the Saint Sernin figure suggest a garment of some kind. M. Reinach does not believe these sculptures to be of Neolithic age, but copies of originals in metal, probably bronze. To this it may be objected that if this were the case they would hardly be such crude productions.[1] Near the village of Collorgues, in Gard, are two female carvings on a dolmen. They recall that at Coizard, but have the arms, in one the hands also, carved. Nose, eyes (not the mouth), and breasts are shown, though in one the last are placed above the necklace. Below the arms in one is what appears to be an axe in its handle. Above them in the other a weapon, not unlike a boomerang. M. Cartailhac has described a carving of what he calls a female deity on an upright stone in the *allée couverte* of Épone, in Seine et Oise. It is a bas-relief, the features being recognizable—forehead, nose, eyes, and outline of the face. Below the face is a necklace of three rows of beads, which reach down almost to the breasts.[2] The representations of the breasts in these sculptures re-

Fig. 194.—Guernsey. Stone.

[1] *La Sculpture en Europe*, p. 12, Figs. 22-9; J. de Baye, *Congrès Internat. d'Anthrop.*, Moscow (1892), p. 16. Stone statuettes (so-called idols), with arms crossed in front, have been discovered in the Ægean Islands; cf. Blinkenberg, "Antiquités Prémyceniennes" in *Mem. Soc. Roy. Antiq. du Nord* (1896), p. 6, Fig. 13. (See Fig. 178.)

[2] *L'Anthropologie*, v., p. 147; *La Sculpture en Europe*, Figs. 30-2.

calls their presence on the stones of a well-known circle in Sardinia. This is especially so in two granite figures in Guernsey, described long ago by Lukis. One of these shows the face very distinctly, the other is headless, but has the necklace-like carving[1] (Fig. 194).

If these sculptures are rightly attributed to the Neolithic period they lend support to the belief, entertained by some, that the worship of a female deity was widely prevalent in that age.

8. *GOLD IN THE NEOLITHIC AGE.*

Virgin gold by its brightness may very well have attracted the attention of man at a very early period, and there is some reason for believing it was known in the Neolithic age, in some places where it was the first metal discovered and used. All the gold objects found with interments in Britain must be referred to post-Neolithic times. The absence of gold from British barrows may, of course, be due to the rifling from which they have suffered. In France gold is said to have been found associated with Neolithic remains. It has been remarked that the only metal recovered from the dolmens of the Carnac district of Brittany is gold.[2] M. Piette found in a Neolithic tumulus in the Gers a heavy gold bead. Two collars, each weighing about a hundred and forty grammes, were found by M. Lebail in the dolmen of Roe'h Guyon or Rondessac, at Plouharnel-Carnac. They had been placed in an urn with burnt remains, a fact which may raise some doubt as to their being of Neolithic age. They are of native gold, and about one and a half inches

[1] *Archæologia*, XLVIII., Plate XXXII.

[2] A. de la Grancière, "Passage du Néolithique aux métaux en Armorique Occidentale," *L'Anthropologie*, XII., p. 635 (note).

wide, and are partly cut into longitudinal strips. Two plain bracelets were discovered in a dolmen near *Belz* in Morbihan.[1] Small objects of gold were recently found at Lochmariaquer, by M. Le Rouzic, in the dolmen of Mané-Lud, regarding the Neolithic age of which there can hardly be any doubt.[2]

[1] Cf. *Dict. Archéol. de la Gaule*, tom. ii., fasc., and Wilson, "Prehistoric Art," in *Ann. Rep. Smithsonian Institution* (1896), Figs. 155 and 156.

[2] In a letter from M. Le Rouzic to the author.

CHAPTER VI.

THE BRONZE AGE.

1. *THE DISCOVERY OF METALS.*

Of all discoveries that of metals, from its influence on civilization, must ever rank among the greatest. The metals found in the virgin state—gold, silver, and copper—no doubt first attracted attention. By its brightness, beauty, and untarnishability, gold may well have been the first noticed and, as we have seen, there is reason to believe it was known in Neolithic times. Copper, however, occurs in the pure state in much larger quantities, and was the first metal used for making tools and weapons. Prehistoric copper implements have been found in many parts of the world, but we do not know where it was first discovered or first used. Considering its wide distribution there can be little doubt that it was independently discovered in several different places. Copper tools have been discovered in predynastic graves in Egypt,[1] going back more than 4000 years before the Christian era, and in Babylonia copper was known as early as 4500 B.C.[2] The frequent association of primitive copper implements with interments towards the close of the Neolithic age, and the many tools and implements of this metal found in some

[1] G. A. Reisner, *The Early Dynastic Graves of Naga-Ed-Dér*, p. 117 (1908).

[2] H. R. Hall, *The Oldest Civilization of Greece*, p. 197.

regions, e.g. Hungary, Ireland, Italy, and Cyprus, have led to a belief in the existence of an *Age of Copper* preceding that of Bronze.[1] The earliest evidence of working in copper appears to come from Egypt, and so far supports the views of those who contend that it was the seat of the original discovery of the metal. Copper was mined in the Sinaitic peninsula from very early times, and a good deal has been made of the importance of copper in facilitating the dressing and sculpturing of stone in the valley of the Nile. Considering its softness such use of copper has probably been exaggerated, and stone tools would be more efficient for these purposes. Although it may be hardened by hammering, by the presence of antimony or arsenic, or by the addition of oxide of copper, the utility of copper for the manufacture of cutting instruments is greatly discounted by its softness.[2] Hence the importance of the discovery that by mixing it with a small quantity of Tin an alloy was obtained of much greater hardness, and which moreover could be more easily cast. This alloy is Bronze.

2. *ORIGIN OF BRONZE.*

When and where it was first discovered that by mixing Tin with Copper the much harder Bronze could be produced still remains a mystery. The determination of the place of origin of Bronze is complicated by the difficulty of discovering the sources of the Tin necessary for its manufacture. Since Bronze appears to have been known in Egypt early in the fourth millennium B.C.,[3] the earliest

[1] F. de Pulsky, "L'Age de Cuivre en Hongrie," *Cong. Int. Anthrop. Budapest* (1876); Much, *Die Kupferzeit in Europa* (1886).

[2] J. H. Gladstone, "Transition from use of Copper to that of Bronze" (1895), *Journal Anthrop. Institute*, p. 309.

[3] A bronze rod from Mêdûm is said to date from 3700 B.C., cf. Hall, *op. cit.*, p. 196, and *Brit. Mus. Guide—Bronze Age*, p. 9, and Montelius, "L'Age du Bronze en Egypte," in *L'Anthropologie*, I., p. 27.

source of Tin can hardly be looked for in the mines of Western Europe from which such large supplies have since been obtained. If we turn to the East, there is no evidence of such early working of the stanniferous deposits now so productive in the Malay Archipelago. The Caucasus, Southern China, and Khorassan, south-east of the Caspian, have been put forward as sources of the Tin used in these early times. The absence of any great development of a Bronze culture in the Caucasus,[1] even at a later date, makes it a very improbable source, whilst Egypt would be reached no more easily from China than from Spain. Persia is certainly a more probable source, and the Tin of Khorassan might well find its way to the valley of the Euphrates, where Bronze may yet be discovered of earlier date than that of the oldest Bronze of Egypt, and whence it may have reached the valley of the Nile.[2] In discussing this question it is important to remember that metallic Tin is not essential to the production of Bronze. The ore of this metal heated with Copper gives excellent Bronze. A knowledge of the methods by which Tin can be extracted from its ores was accordingly not necessary in early prehistoric times. Therefore wherever Tin ore is found in close proximity to Copper, Bronze might well originate.[3]

Wherever Bronze may have originated it was known in Egypt in the fourth millennium B.C., though apparently

[1] É. Chantre, *Recherches Anthrop. dans la Caucase*, p. 77; cf. Virchow, *Cong. des Soc. Anthrop. Allemands* (1889), "Antiq. de Transcauscasie".

[2] Bronze statuettes of the Babylonian King Gudea date from about 2500 B.C., and others without royal names are earlier still. Hall, *op. cit.*, p. 196. That these statuettes are bronze is disputed.

[3] W. Gowland, "Copper and its Alloys in Prehistoric Times," *Jo. Anthrop. Inst.*, XXXVI., p. 35, and "Metals in Antiquity," *Jo. Anthrop. Inst.* (1912), XLII., p. 235.

it did not come into general use until the Twelfth Dynasty, or during the latter half of the third millennium. It was known in Crete at this latter period, and had reached South-east Spain by 2000 B.C., and was probably in use in Britain as early as 1500 B.C.[1] Iron probably did not come into general use in the Eastern Mediterranean before 1000 B.C., and at a time later still in the extreme West of Europe, until in Britain 400 to 300 B.C.[2] is approximately early enough for its appearance there, and in Scandinavia later still. There must therefore have been a considerable interval, varying from 1500 to 1000 years, during which over a great part of Europe, cutting instruments were made of Bronze, Iron being unknown for such a purpose. In other words, a period during which Europe was in the Bronze Age.

The discovery and use of Bronze is of much interest from the point of view of Art, for it afforded a new material much more suitable and tractable than Stone, or even Copper, for the expression of form, and as a vehicle for ornament and decoration. Other materials on which the art of the Bronze Age may be studied are Pottery, Gold, Silver, Jet, and Amber.

3. *CASTING IN BRONZE.*

Most of the metal objects of the Bronze Age were cast in the alloy. Hammering was not employed as a method until towards its close, and an interesting phase of the art of this period is the excellence attained in Bronze casting. That most of the articles of Bronze so widely distributed

[1] Montelius, *La Chronologie de l'Age du Bronze* (1885). Montelius has since put these dates back some 500 years (see *Archæologia*, LXI. (1909), p. 97.

[2] Evans, *Ancient Bronze Implements of Great Britain*, chap. XXII.

over Europe at this time were manufactured on the spot, and were not imported from a distance, is clearly shown by the discovery of the moulds in which they were cast. *Moulds*, both of Stone (Figs. 195, 196), and of Bronze (Fig. 197), for celts, spear-heads, knives, daggers, and swords are frequently found. The skill and accuracy

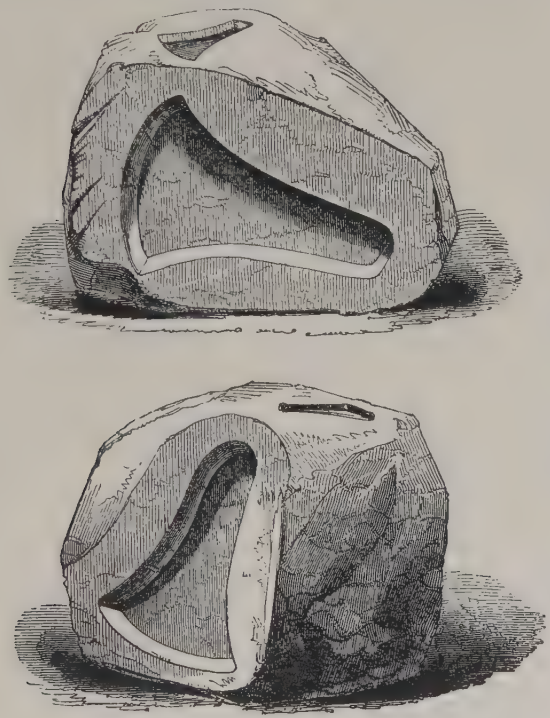


FIG. 195.—Stone moulds. Ireland. 6 inches long.

attained in this art in the Bronze Age is well exemplified by the *Bronze Trumpets* discovered in Ireland and Scandinavia (Fig. 198). Those from Denmark are long conical horns, straight or curved, called "lurer" by the Danish antiquaries. Some of them are six feet or more in length, and curved at both ends. At the larger end, the bell-mouth, is a disk, sometimes ornamented; at the narrow end is the mouth-piece which is not movable. These in-

struments, when of any length, were not cast in one piece, but were composed of sections joined together. In some cases the metal throughout its length, except at the mouth-piece and bell, is not more than a millimetre thick. That considerable skill is required to cast metal cylinders so thin is obvious: all the more so when there is a regular increase

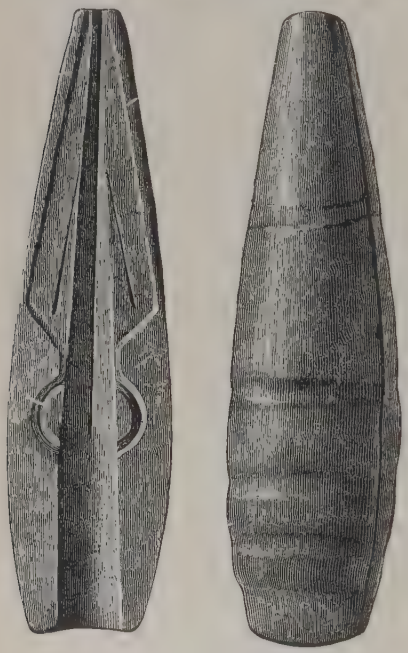


FIG. 196.—Stone mould. Maghera, Ireland. (Half size.)

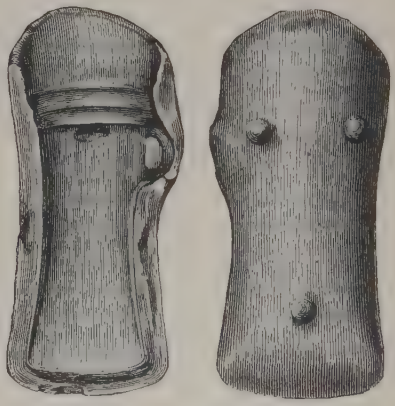


FIG. 197.—Bronze mould. Harty. (Half size.)

in diameter, and the inner surface is polished. No less than twenty-three of these horns have been recovered from the peat bogs of Denmark, fourteen of which were in excellent condition due to their being preserved in this medium.[1] How thorough the preservation has been is

[1] Also 8 specimens, for the most part fragmentary, from South Sweden, and some small specimens from Mecklenburg. There are 19 trumpets in the Copenhagen Museum of which 10 are complete. Analysis shows the composition of the Bronze to be as follows: Copper, 88·9; Tin, 10·61; Iron, 0·49.

FIG. 198.—Bronze lur. Denmark.

shown by the fact that they can now be played upon. Every midsummer day in the court of the museum at Copenhagen a concert is held at which the instruments used are these prehistoric trumpets. After being buried for thousands of years in the bowels of the earth they have arisen still able to emit clear, ringing, even sweet sounds. "It is not only by the number of its sounds, but also by their nature, purity, and force, their timbre and volubility, that the Lur is a remarkably complete instrument. Its superiority also stands out when compared with what we know of ancient wind instruments of a similar kind. Everything points to these emitting loud, raucous, often terrifying sounds, no attempt being made to modify them by applying acoustic principles. The many historical references to these instruments do not apply to the Danish lur. It pertains to quite a different culture, more advanced, more refined: to a people whose strongly developed artistic taste appealed not only to the eye, but also to the ear."[1] A musical scale of twenty-two tones can be produced on these instruments. It does not follow that these were all known in the Bronze Age. Probably not, for only eight belong to the instrument itself, being easily produced as they do not require any particular technical knowledge on the part of the player. Yet, as Prof. Hammerich very aptly remarks, a people who were capable of such skill and technical knowledge in the making of these trumpets would probably have little difficulty in learning to produce upon them the other tones. These horns are sometimes in pairs. The paired instruments are of the same size in length and diameter, and are tuned to the same note, all showing the great skill and exactitude with which the casting must have been carried out.

[1] A. Hammerich, "Les Lurs de l'Age du Bronze au musée nat. Copenhagen," *Mem. Soc. Roy. des Antiq. du Nord Copenhagen*, 1892, pp. 137-69. For Fig. 198, from the Copenhagen Museum Guide, I have to thank Prof. S. Müller.

Bronze trumpets have been found in so many different parts of *Ireland*, that we must assume the inhabitants of the Emerald Isle in the Bronze Age, not only to have been skilful metallurgists, of which there is abundant other evidence, but also to have had a considerable love of music. They have been discovered in the counties of Antrim,

FIGS. 199, 200.—Bronze trumpets. Tralee.

Down, Armagh, King's County, Cavan, Tyrone, Kerry, Limerick, and Cork. Many of them are remarkable in having the mouth opening at the side, instead of at the end (Fig. 199). These are always cast in one piece. A good many of those with mouthpieces at the extremity are of hammered bronze, and are made of two pieces of metal

carefully and neatly riveted together along the convex and concave sides (Fig. 200). The largest of these trumpets yet discovered is of this nature. It comes from a crannog at Ardlin, in the parish of Armaghclone, County Down, and is 8 feet 5 inches long.[1] The art of soldering metals appears to have been unknown at this time, which may to some extent account for the skill attained in riveting well seen in this specimen. The nearest approach to soldering made by these early Irish bronze workers was to pour molten metal on the junction of the broken pieces until they had become melted, and the old and new formed one solid mass. It is not without interest to observe that at Mycenæ Schliemann found there was hardly any soldering of the copper vessels, plates and handles being joined by means of rivets, though in the burnt city of Hissarlik soldering was common.[2] The goldsmiths of Mycenæ however understood the soldering of gold.[3] A number of Bronze Trumpets formed part of a large bronze hoard discovered in 1883 at *Dowris*, in King's County. Some of these are in the British Museum, and at once attract attention by their lustrous golden colour. This is probably due to the presence of a considerable proportion of lead, for analysis has shown almost as much of that metal (9·11 per cent) as of tin (10·87 per cent).[4] There is only one specimen from Britain which can be attributed to this period. It is an excellent example of the cast variety found at *Caprington*, in Ayrshire. It has two small rings on the convex side, no doubt for the attachment of a chain.[5]

In the Dowris hoard was another musical instrument of a very simple character, viz. little pear-shaped bronze *Bells* with a ring for attachment (Fig. 201). They have the same

[1] Wood-Martin, *The Lake Dwellings of Ireland*, p. 126, Plate XXIX.
[2] *Ilios*, p. 474. [3] *Mycenæ*, p. 231.
[4] Evans, *Ancient Bronze Implements of Gt. Britain*, p. 36.
[5] *Ibid.*, p. 362, Fig. 445.

lustrous gold colour as the trumpets. They emit but a dull and feeble sound. They would really be more correctly described as rattles, for there is no clapper, merely a loose piece of metal inside. It is interesting to compare these with little bronze bells, not unlike them, discovered at Chiriqui in Colombia, and used by the natives of South America before the Spanish conquest. Similar instruments have also been found in Mexico.[1]

Fig. 201.—Bronze bell. Dowris.

Before leaving the subject of casting in bronze reference may be made to an excellent example which has, without exaggeration, been described as a masterpiece, equal to anything known up to the present day. It is a double axe from Phæstos in Crete. On each side of it is a butterfly of conventional design (resembling the butterfly designs on gold disks discovered by Schliemann at Mycenæ) in low relief and exquisitely delicate.[2]

4. *REPOUSSÉ WORK.*

The capabilities of the Bronze Age artist for repoussé working in the alloy, and the excellence of his craftmanship, are well illustrated by a number of *circular Shields* or *Bucklers* which have been discovered in different parts of the British Isles. Three may be mentioned in illustration. The first, dragged up from the bed of the Isis near *Little Wittenham* in 1836, is so small, being not much more than a foot in diameter, that it probably formed only part of the actual shield. The design, however, is similar

[1] Wilson, "Prehistoric Art," in *Smithsonian Report* (1896), Fig. 279, p. 627.

[2] A. Mosso, *Dawn of Mediterranean Civilization*, Fig. 180, p. 318.

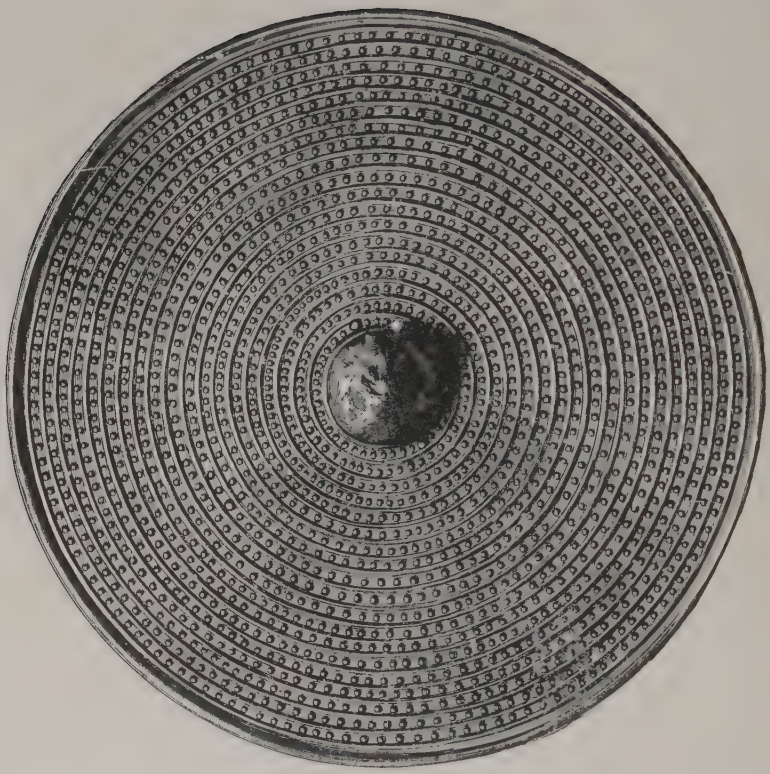


FIG. 202.—Bronze buckler. Yetholm, Roxburghshire. (One-sixth size.)

to that which is characteristic of most of these bucklers, viz. concentric series of raised circular knobs alternating with narrow raised bands. In this example there are only two series of raised bosses, separated from one another and from the central umbo by a raised band. Considerable ingenuity is shown in making the two rivets of the handle resemble on the outside the raised bosses, so as to appear as part of the inner series. Two bosses of the outside series are in like manner rivets for straps or buttons on the

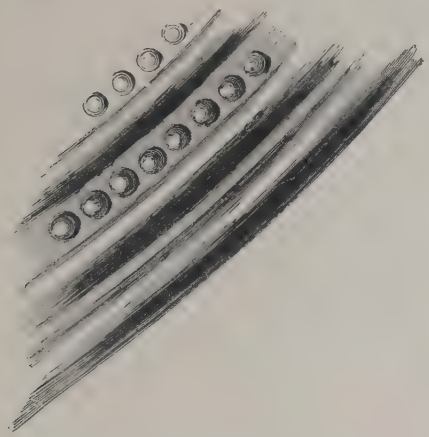


FIG. 203.—Part of the Yetholm buckler. (Natural size.)

FIG. 204.—Handle of the same. (Quarter size.)

inside.[1] A finer and more elaborate example was found in 1837 at *Yetholm* in Roxburghshire. It is 24 inches in diameter and has nineteen concentric series of small knobs alternating with raised bands[2] (Figs. 202, 203, 204). A still more remarkable specimen, which cannot fail to impress anyone with the skill of the Bronze Age metal-worker, also comes from Scotland, having been found in the peat in the parish of *Beith* in Argyllshire in the year 1780. Although measuring only 27 inches in diameter it

[1] *Archæologia*, XXVII., p. 298.

[2] *Proc. Soc. Antiq. Scotland*, V., p. 165.

shows no less than twenty-nine concentric rows of small knobs separated by an equal number of raised bands.[1] This number of circles of embossed elevations is even exceeded by another shield from the site already mentioned, Yetholm, for it has thirty. These bucklers appear to have been more largely used in Britain than on the Continent, where they occur in much fewer numbers. Other sites in the British Isles where they have been discovered are in Wales, Northumberland, Shropshire, Lincolnshire, the Thames, and Ireland. As Sir John Evans has remarked, the skill requisite for the production of these shields must have been great, and the appliances at command by no means contemptible. The whole of the work is repoussé and wrought with the hammer, and not improbably the original sheet of bronze from which a shield was made was considerably less in diameter and also much thicker than the finished work.

It must be said, however, that there is some uncertainty as to the date of these shields, for they have not been found, with one exception, associated with other objects of bronze. This exception was dredged up from the Thames at Woolwich, and with it was a bronze sword. Moreover as other bronze shields are clearly attributable, as we shall see, to Late Keltic times, there is a temptation to refer them to the same period. At the same time they have never been found in close association with Late Keltic products, and the work and ornament more closely agree with those of the Bronze Age. Since, as already mentioned, hammering as a method of working bronze did not come into use until the latter part of the Bronze Age, we shall probably not be far wrong in attributing them to a time towards the close of that period.

[1] Cf. Evans, *Ancient Bronze Impts. of Great Britain*, p. 348, Figs. 432-4.

CHAPTER VII.

CHARACTER OF BRONZE AGE DECORATION.

The designs characterizing the ornamentation of the Bronze Age generally are essentially geometric. Two motives are particularly dominant, and consideration of them will afford a convenient means of studying certain phases of Bronze Age art. These motives are the Chevron and the Spiral.

FIG. 205.—Bronze celt. Read, Lancashire. (Half size.)

1. *THE CHEVRON.*

On bronze, gold, and pottery, the chevron in every variety of disposition appears. Passing from Britain it is a characteristic of Bronze Age ornament in France, Germany, and Scandinavia, in the Swiss Lake

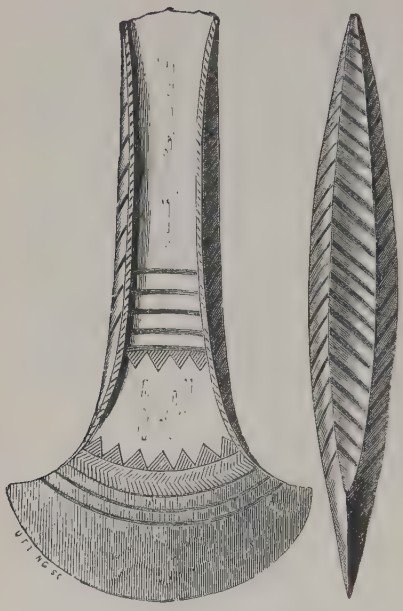


Fig. 206.—Lewes. (Half size.)

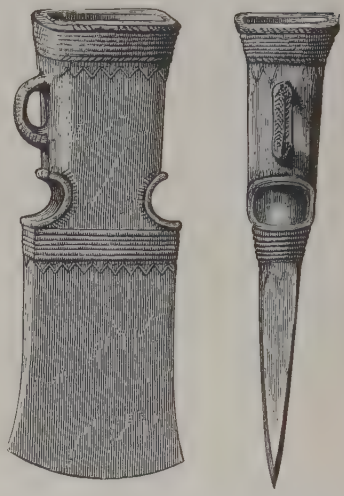


Fig. 207.—Ulleskelf. (Half size.)

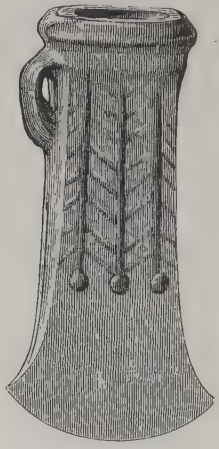


Fig. 208.—Winwick, Lancashire. (Half size.)

Fig. 209.—Givendale, Yorks. (Half size.)

Ornamented Bronze Celts.

Dwellings, and Northern Italy, in Greece and the Eastern Mediterranean, and appears in Egypt as a frequent ornamental motive under the Eleventh Dynasty.[1] It is seen engraved on the typical implement of the age, the Bronze Axe, or *Celt.* It is generally, however, on the earlier forms as the flanged celt that it is seen (Figs.

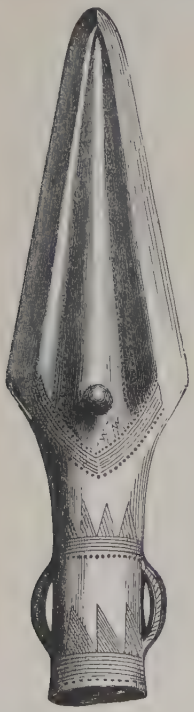
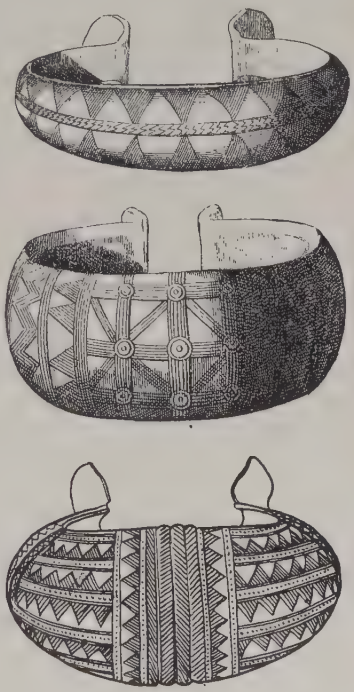


Fig. 210.—Bronze spearhead. Ireland. (Two-thirds size.)



Figs. 211, 212, 213.—Bronze bracelets. Réallon, Hautes Alpes.

205, 206). In Britain it is not until the later part of the period, when the socketed celt had been evolved, that the circle as a motive is seen upon it. These circles are not engraved, but are in relief, and are connected by raised ribs running in parallel or divergent lines (Figs. 207, 208, 209). The chevron is occasionally seen on *spear-*

[1] Goodyear, *The Grammar of the Lotus*, p. 333.

heads (Fig. 210), but it is used much more frequently, and with greater elaboration, on personal ornaments, as *bracelets* (Figs. 211, 212, 213). Its employment is nowhere more marked than on the *gold lunulæ* or *crescents* found in Ireland, Wales, Cornwall, Brittany, and Denmark (see Fig. 247). The "horns" of these interesting ornaments are often almost completely covered with very fine engraved lines,

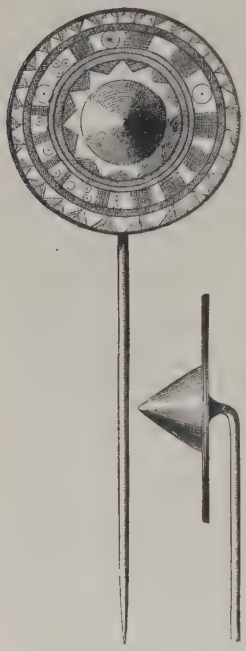


Fig. 214.—Bronze pin with chevron ornament. Ireland. (Quarter size.)

Fig. 215.—Bronze spheroid with remarkable ornamentation. Allier. (Quarter size.)

the whole of which may be described as a play upon the chevron. Only the borders of the broad central portion are engraved, but here the same motive occurs.

It is most interesting and significant to observe that the designs resulting from the combination of chevrons are practically identical on lunulæ found so far apart as Ireland, Wales, and Cornwall.

The same motive is seen on the head of a bronze *pin* from Ireland (Fig. 214), and remarkably elaborated on a bronze *spheroid* (Fig. 215), found at La Ferté Hautrive (Allier), and supposed to have formed part of an apparatus for producing fire by friction.

On the flat plates which, alternating with oval beads, form a *jet necklace* discovered at Torrish, in Sutherlandshire, the same motive is seen, the design being picked out with minute white dots.[1] A similar design, produced in precisely the same way, is seen on a jet necklace from Melfort, in Argyllshire,[2] and on another from Assynt, Ross-shire[3] (Fig. 272).

2. *BRONZE AGE POTTERY.*

It is on the pottery of the Bronze Age that the chevron more particularly asserts itself, and the sepulchral vessels from the Round Barrows of Britain well illustrate this ornamental motive.[4] The earliest of these vessels is known as the *Beaker* or *Drinking Cup*, from the supposition that it was placed in the tomb as a receptacle for drink to refresh the spirit of the deceased during his journey to the nether world. Beakers are almost invariably found with inhumations beneath a barrow ; very few have ever been

[1] *Archæologia*, XLIII., Fig. 209.

[2] *Brit. Mus. Guide—Bronze Age*, Fig. 89.

[3] Evans, *Anc. Stone Impts.*, Fig. 375.

[4] Gen. Pitt Rivers, referring to the chevron with parallel-line shading on pottery, says: "This chevron pattern is especially characteristic of the Bronze Age all over Europe. It can hardly be said with certainty to have been used in the Stone Age, and though it was in use in the Iron Age in some places, and especially in Italy, it is so characteristically Bronze Age, that when a fragment of pottery ornamented with it is found in an English earthwork it may with little doubt be set down to that period."—*Excavations at Cranbourne Chase*, IV., p. 238, Plate 316 (2).

discovered associated with cremation. They were classified by Dr. Thurnam in three groups: (1) Those with a globular body and a straight brim about the same height as the lower part and termed by him high brimmed *Globose Cups;* (2) Those in which the distinction between body and brim is less marked, the body being oval, and gradually passing into an outwardly curved lip. This is his *Oval type;* (3) The third variety with an oval body also, but having a much lower brim, is distinguished as the *Low-brimmed type*[1] (Fig. 216). Mr. Abercromby has followed this classification, distinguishing the three groups as types A, B, and C. The whole surface is usually ornamented. The designs, in which the chevron largely figures, are arranged in three or more bands or zones, separated by narrower plain bands. The usual *technique* was to stamp the moist clay with a thin curved slip of wood or bone slightly notched at short intervals. Another method was to make the design with a sharp or blunted point. The former was used on the dry clay, the latter whilst it was still soft. A twisted cord or the finger nail were occasionally the means employed. Very rarely small circular impressions were produced by pressing a hollow stick or cylinder upon the clay (Fig. 217). There are only two or three instances of the incised designs being filled with a white material. Occasionally the beaker has a broad handle when it takes on the appearance of a tankard.

Beakers are, generally speaking, from 6 to 8 inches high. They are hand-made, with thin walls of clay tempered with sand or finely powdered stone. They are yellow or light brown in colour, occasionally red. Both in shape and in ornamentation type B recalls the calyciform vases of the Continent: whether there is any connexion between them or not, there can be no doubt that the

[1] "Ancient British Barrows," *Archæologia*, XLIII., p. 391, Plate XXXI.

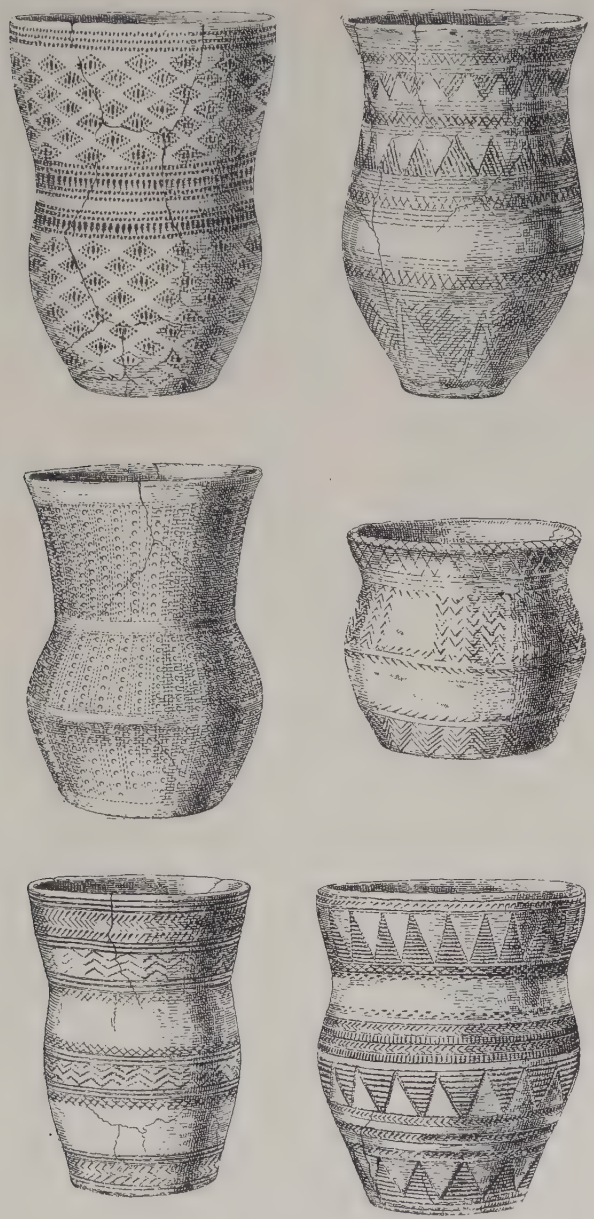
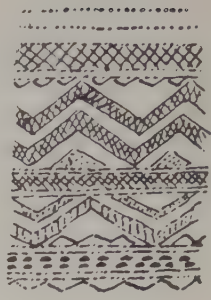


Fig. 216.—Beakers of different types.

Wilts.

Derby.

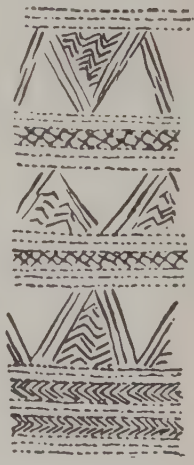


E.R. Yorks.

Northumberland.

Nairn.

Aberdeen.



Roxburgh.

FIG. 217.—Designs on beakers from the seven provinces of Britain. (After Abercromby.)

Drinking Cup dates from a very early period of the Bronze Age. This is shown by the nature of the objects accompanying it. Of sixty-seven interments containing beakers, whilst fifty-two were associated with stone implements, only twenty-one contained objects of bronze, and these were of a primitive character as awls and knife daggers.

The *Distribution of Beakers* in Britain is curious and highly interesting, and has been most fully and carefully investigated by the Hon. J. Abercromby. It has generally been held that the beaker did not reach Ireland, but Mr. Abercromby figures fragments of three from Sligo, and a complete one from County Down. In Britain they have been discovered widely distributed, occurring in certain more or less restricted areas in Scotland, the counties of Northumberland and Durham, Yorkshire, the Peak district, the Eastern counties, and between Oxford and Dorset. It was in the last-named area that they were first discovered by Sir Colt Hoare in barrows near Stonehenge. Mr. Abercromby in fact distributes them in seven provinces, from south to north, as follows: (1) south of the Thames; (2) from the Thames to the Humber; (3) Yorkshire; (4) the remaining counties of Northern England; (5) Scotland to the Tay: with these are associated the few specimens found in Ireland; (6) Forfar, Kincardine, and Aberdeen counties; (7) the rest of Northern Scotland (Fig. 218). Types A and B, numerous in the south, diminish in number as we go north until in Province 6 A has completely disappeared and B nearly so. On the other hand type C, very meagrely represented in Provinces 1 and 2, gradually increases going north until in Provinces 6 and 7 it practically alone survives. A very similar type of vessel, possibly related to the calyciform vases, is found in Holland between the Zuyder Zee and the Rhine, along that river, and for some distance east of it (Fig. 219). "The parallelism between the Rhenish

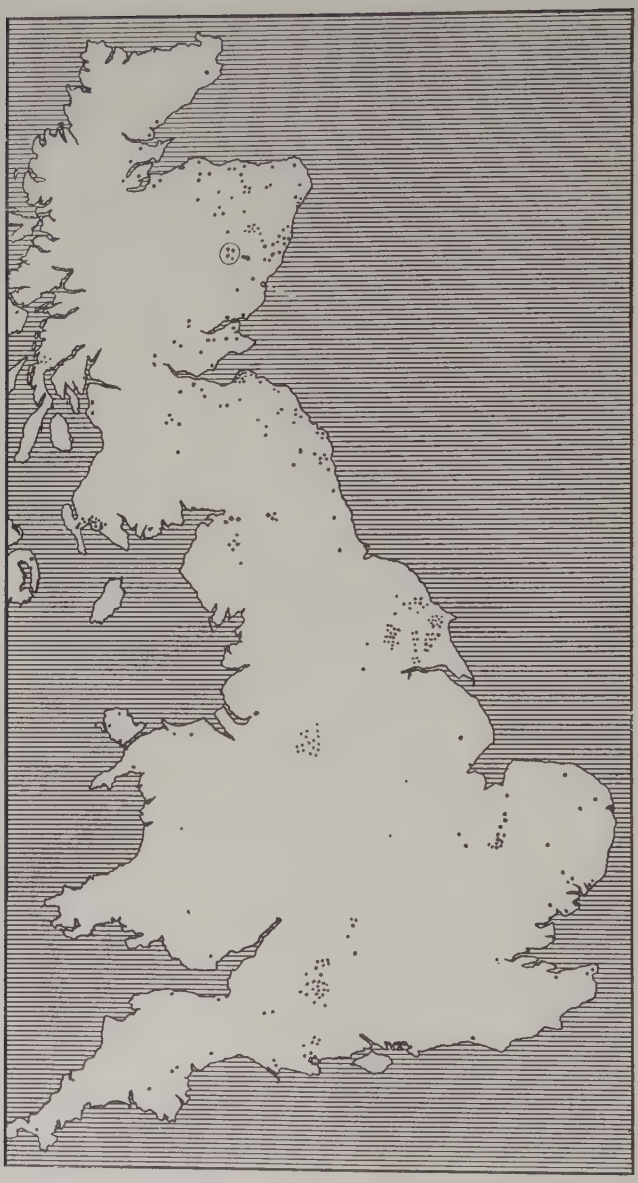


FIG. 218.—Map showing distribution of beakers. (After Abercromby.)

and British beaker is complete, and they only differ in one respect, viz. that in the latter the ornament zones are narrower, and composed of simpler motives, more analogous to what is found in Brittany and Holstein." Based on these comparisons, and after a close and detailed study

FIG. 219.—Map showing distribution of German and Batavian beakers. (After Abercromby.)

of the shape, ornamentation, distribution, and accompanying objects of the beakers of Britain, Mr. Abercromby has formulated the interesting theory that this type of ceramic was introduced from the Continent by a race of brachycephalic invaders coming from east of the Rhine, at

the beginning of the Bronze Age, probably about 2000 B.C., and that they afterwards spread from the south of England through the several provinces to the north of Scotland and to Ireland. He further concludes that the beaker lasted about 500 years, that is till about 1500 B.C.[1]

The association of the British beaker through the Rhenish forms with the calyciform vessel of the Continent, can hardly fail to attract attention, and further discoveries may give rise to interesting results. Not improbably the calyciform vessel originated in Spain, and spread thence north-west to Brittany, south-east as far as Sicily and into Central Europe where the easterly limit appears to be Buda Pesth. Possibly it was accompanied by copper, and indicates the earliest spread of metal over Western Europe.

Also accompanying unburnt burials of the Bronze Age, but not unfrequently associated with cremation, is another vessel, a sort of correlative of the drinking cup, for it has been supposed, in all probability wrongly, to have been placed in the grave to hold food for the deceased, and is therefore known as a *Food Vessel*. It is a purely British product, for it is unknown outside the British Isles, but unlike the beaker is found in considerable numbers in Ireland. It is not so tall as the beaker, measuring only 4 to 6 inches in height, is thicker, and often made of coarser paste. In shape it is also quite different—one of the most characteristic forms has a grooved shoulder, either with or without stops. Others have a concave neck, or are biconical or cylindrical in shape, or assume the form of a truncated cone (Fig. 220). They are often elaborately ornamented,

[1] *Bronze Age Pottery of Great Britain and Ireland*, by Hon. J. Abercromby (1912), I, p. 22; II, chap. XIII. I am indebted to Mr. Abercromby for permission to copy the illustrations in this work (published by the Clarendon Press), and I have compiled the accompanying map (Fig. 218), on his kind suggestion, from the maps therein. The sites of the specimens enclosed in a circle on the map are not exactly known.

FIG. 220.—Food vessels. (After Abercromby.)

"by far the most usual ornament being a surface pattern consisting of parallel line chevrons covering the whole vessel without any intervening plain bands". Food vessels are distributed in three regions by Mr. Abercromby. (1) The southern half of England where they are scarce; (2) the northern half where they are more numerous; (3) Scotland and Ireland.[1] In the last the ornamentation is more elaborate. The *technique* is the same as that of beakers, but in addition whipped cord and false relief are used. Whilst the former of these does not occur in Ireland the latter is found there, its probable place of origin, in its most elaborate form. It was produced by "pressing a triangularly-headed slip of wood or bone in such a way as to produce a bar-chevron in false relief. The deepest part of the impression is always the point. In some instances the triangular head is very rounded as if the thumb nail had been used instead of a slip of wood. But the principle is always the same, the motive had to stand out in apparent not real relief."[2]

The adoption of cremation in Britain during the Bronze Age was an incentive to the production of pottery in the shape of the *Cinerary Urn*. This was often much larger than the vessels just described, sometimes attaining a height of two feet or more. Many of the larger ones are very similar in shape, having a deep thickened, slightly inwardly slanting brim. Others look like enlarged food vessels. A cylindrical form is not uncommon, and in some instances there are raised bands on the surface giving the urn a cordoned appearance (Fig. 221). They are often made of a coarse ware, the clay being mixed with stone and sand, and imperfectly baked. The walls are thick and they are of course hand-made. Many of them are ornamented with dots or lines produced by means of a pointed instrument, or by pressing a cord on the soft clay

[1] Abercromby, *op. cit.*, I., pp. 94, 132. [2] *Ibid.*, I., p. 135.

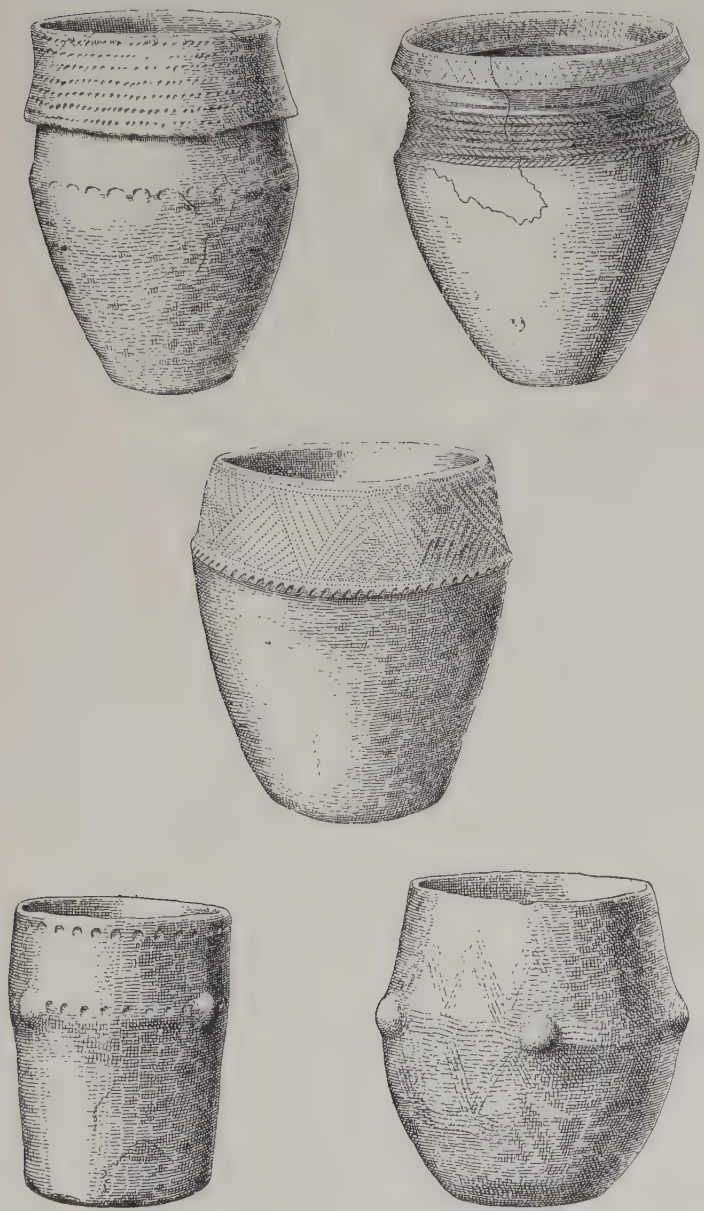
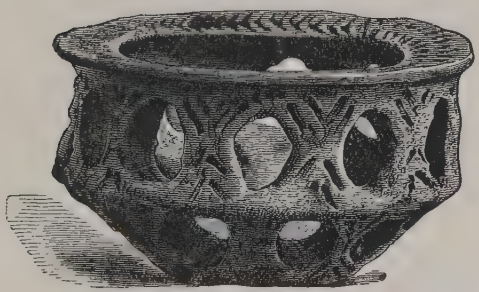


Fig. 221.—Cinerary urns.

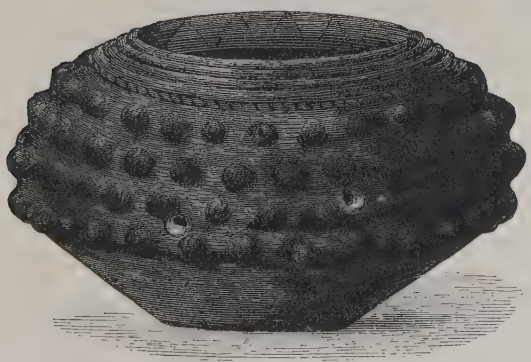
before baking. The notched stick so characteristic of the beaker technique appears to have fallen into disuse, for it is never seen on this form of ceramic. Chevron designs are very common, and appear even when the pattern has been made with a cord alone. The ornamentation is usually restricted to the upper part of the vessel. Exceptions occur in Ireland, Wales, and Cornwall in which the body is ornamented, and in several of these cases the chevron motive is very pronounced.

Found generally, but not always, associated with cinerary urns, and sometimes inside them, is a vessel much smaller than any of the preceding. It was first noticed by Sir Colt Hoare from whom it received the somewhat fanciful name of *Incense Cup*, for which there appears to be no better reason than that some of them are perforated, and others have simply ornamentation on the bottom which would be visible when the vessel was swung. They are only 1½ to 3 inches in height, and not much more in width. These small dimensions have given rise to the suggestion that they were made for burial with children. This is contradicted by the fact that they are found associated with the remains of adults. They are often pierced with two or more small holes by which they could be hung or for attaching a cover with which some are indeed provided. These little vessels chiefly attract attention on account of the great variety of their form. The British Bronze Age potters show their greatest originality in devising the shapes of these little vessels. The simplest, which may have suggested the name, are little cups sometimes provided with a foot or pedestal. Another form is the biconical. Others are more or less covered with little nodules forming a nodulated or mammillary variety. But the most interesting are those with perforations which are of many different shapes. This variety has given rise to the idea that the "Incense cups" may have been used for carrying

Woodyates, Dorset.



Bulford, Wilts.



Avebury, Wilts.

FIG. 222.—Incense cups.

fire to set light to the funeral pyre. It is well seen in a really elegant example from a barrow at Bulford in Wiltshire. This specimen has two rows of perforations, the orifice alternating. Between the openings are V-shaped incisions forming a broken zigzag. The flattened edge is ornamented with a herring-bone design, the bottom with

Fig. 223.—Incense cup with cover. (Two-thirds size.)

concentric circles (Fig. 222). Chevron designs are often seen on these little vessels produced by dots or lines, or cord impressions, occasionally extending to the cover when present (Fig. 223). The technique in fact is similar to that of cinerary urns with which Mr. Abercromby classifies them as a pygmy form.

An interesting feature in the decoration of all these

primitive vessels is that though the designs consist of simple combinations of straight lines and dots, among which the chevron often appears, yet no two of them are ever exactly alike. The Bronze Age artists who decorated this simple ware, however primitive they may have been, were evidently endowed, so far as their limitations permitted, with individuality and originality, and must have taken a genuine pleasure in designing the ornamentation of this early pottery.

Fig. 224.—Pottery inlaid with tin. (2) Cortaillod. (Half size.) (6) Hauterive. (Quarter size.) (After Munro.)

One of the most singular methods of ornamenting pottery in the Bronze Age was by means of *Tin*. Several examples of this form of decoration have been discovered in the Swiss Lake Dwellings (Fig. 224). Narrow strips of tin were inlaid on ware having a smooth black surface. Pottery ornamented in this way, forming geometric designs, has been recovered from pile-dwelling sites at *Cortaillod* on Lake Neuchatel, at *St. Prex* on Lake Geneva, and at *Chatillon* and *Conjux* on Lake Bourget.[1]

[1] Munro, *Lake Dwellings of Europe*, p. 530, Fig. 153; Keller, *Lake Dwellings of Switzerland*, Plates 43 and 95; Chantre, *Age du Bronze*, Album Plate XXXI. For Fig. 224 I desire to express my thanks to Dr. Munro.

3. *THE SPIRAL.*

The apparently insoluble, but ever fascinating, question why we are pleased with some designs more than with others is immediately presented to us when we turn to spiral ornament. No simple ornamental motive seems to have so great an attraction as the spiral. None bears so easily repetition. Some of the most beautiful designs, take for example the ornamented ceiling of a tomb at Orchomenos in Bœotia, are based on a constant repetition of the same spiral motive (Fig. 225). Yet it produces no sense of weariness. This attractiveness of the spiral is all the more remarkable when we consider its comparative rarity in nature. Horns, tendrils, and shells afford examples. Among the latter, the Nautilus especially, and if this first suggested spiral ornament, it must have originated near warm seas in which alone this animal can live.

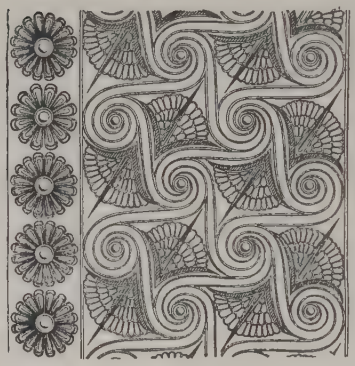


FIG. 225.—*Orchomenos.* Design on ceiling of tomb.

It becomes then an inquiry of some interest to discover the earliest appearance, and the distribution of this ornamental motive. Apart from a few sporadic earlier appearances, it may be said that it is with the discovery of metals that spiral designs are ushered upon the artistic stage. For this reason the origin of the spiral motive has been sought for in a piece of coiled wire. In the Bronze Age it becomes one of the characteristic motives of the most beautiful ornamentation of that period. But it was by no means a necessary concomitant of Bronze Age culture. Spiral designs on objects of bronze do not appear so early in Britain, France, or Western Germany. It is however

found in a few instances on material other than bronze. In a barrow on Folkton Wolds, in the East Riding of Yorkshire, Canon Greenwell discovered three chalk drums engraved with geometrical designs amongst which immature spirals occur[1] (Fig. 226). These have generally been regarded as exceptional importations for they also show the owlface design so common on pottery at Hissarlik, and the so-called "butterfly" design seen more elaborately developed on gold disks at Mycenæ (Figs. 227, 228). On the other hand the extreme difficulty of importing and conveying long distances such objects unbroken has been urged in favour of their indigenous origin. Spirals are

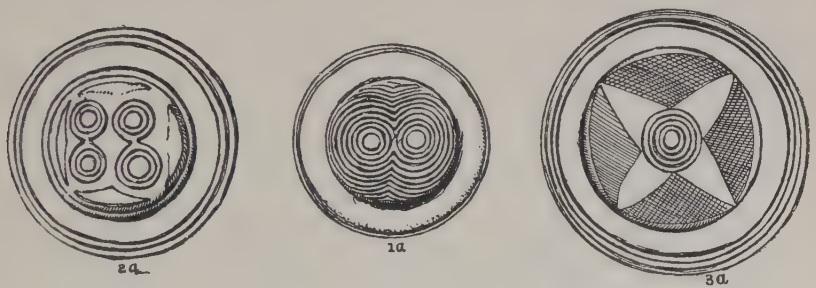


FIG. 226.—Tops of chalk drums from Folkton, Yorks. (Quarter size.)

engraved on stones both outside and inside the tumulus of New Grange in County Meath, Ireland (Figs. 229, 230). They also occur in the neighbouring tumulus of Dowth and at Loughcrew in the same county. Also on Dolmen Stones at Clover Hill, County Sligo (Fig. 231), and Castle Archdall, County Fermanagh. They have often been compared to the solitary example on a standing stone of the *allée couverte* at Gavr'inis in the Morbihan Gulf, already referred to, and generally regarded as of Neolithic Age. The spirals on the stones at New Grange are associated with other geometric designs, and are remarkable for their number, character, and even elaboration.

[1] *Archæologia*, LII., Plates I and II.

Fig. 227.—Chalk drum from Folkton, Yorks. (Two-thirds size.)

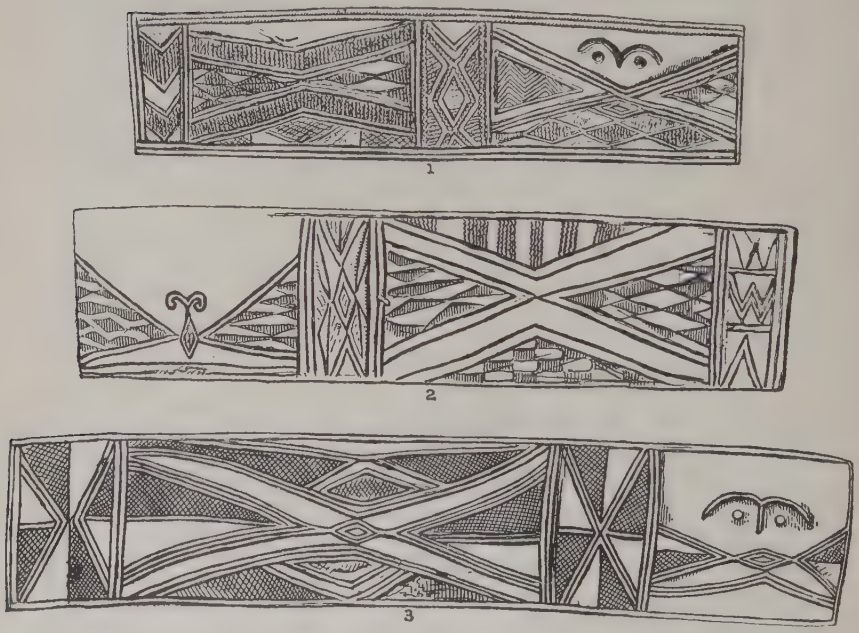


Fig. 228.—Designs on chalk drums from Folkton, Yorks (unrolled). (Quarter size)

FIG. 229.—Stone at the entrance.

FIG. 230.—Stone on north side of tumulus.

SPIRAL DESIGNS AT NEW GRANGE. (After Coffey.)

They have been closely studied and finely illustrated by Mr. G. Coffey.[1] There has been much speculation as to their meaning. Some have seen in them evidence of sun worship to which view support is lent by the "sun discs" engraved on stones in the neighbouring tumulus of Dowth. Others derive them from Mycenæan designs, encouraged by the similarity of the interior of New Grange to Mycenæan tombs. The latest view is that of M. Déchelette who discovers in these designs a degenerate form of the supposed idol of the Neolithic Age. M. Déchelette has expounded his theory in a full and elaborate manner, drawing illustrations in support of it from a great variety of sources on the Continent. His theory shortly appears to amount to this, viz. that the designs are degenerate copies of the human features which have been gradually changed out of all recognition.[2] Spirals engraved on stones are also seen in Scotland, in the counties of Orkney, Argyll, Ayr, and Peebles, at Maughanby in Cumberland, Calder in Lancashire, and at Llanbedr in Wales.[3]

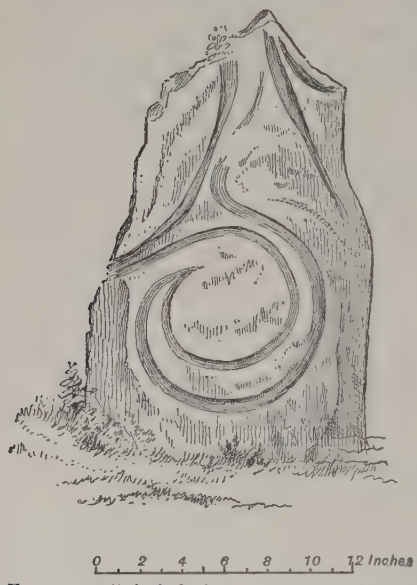


FIG. 231.—Spiral design on stone at Clover Hill, Co. Sligo.

[1] Coffey, "Origins of Prehist. Ornament in Ireland," *R. Soc. Ant. Ireland*, IV., V., and VI.; *New Grange* (1912).

[2] *L'Anthropologie*, XXIII., p. 29, "Une nouvelle interpretation des Gravures de New Grange et de Gavr'inis," par J. Déchelette.

[3] Simpson, *British Archaic Sculpturings*, Plates V, VI, XIII, XIX, XXIII, XXVI.

Fig. 232.—Map showing the distribution of the spiral in Great Britain and Ireland. (After Coffey.)

The distribution of this spiral ornament will be seen at a glance on the map (Fig. 232),[1] and it is in harmony with the view that the spiral reached Ireland by way of Scotland and Northern England from Scandinavia, where it was quite a common motive in the decoration of tools, weapons, and personal ornaments in the Bronze Age (Figs. 233, 234, 235, 236).[2] The power of the simple unaided spiral to produce most pleasing and elegant effects is well illustrated by designs on the hilts of Danish swords. The spiral no doubt reached Scandinavia from the Mediterranean, and by the same routes as brought amber from the Baltic to that sea, that is from the head of the Adriatic, either by way of the Tyrol, Bavaria, Bohemia, and the Elbe valley, or through Carniola, Styria, and Moravia to the Oder, for spiral ornamentation is found in Bavaria[3] and Bohemia[4] and in Hungary,[5] where it occurs in profusion. The similarity of the spiral ornament of these different countries is well illustrated by a comparison of decorated sword handles[6] (Fig. 237). If the spiral ornament of Hungary was not the parent of that of Scandinavia, there can be little doubt that they are both originally derived from the same source, viz. the Eastern Mediter-

Fig. 233.—Bronze diadem. Denmark.

[1] For this map and the illustrations from New Grange I have to thank Mr. G. Coffey and the Roy. Soc. Antiq. Ireland.

[2] Figs. 235, 236 from the guide to the Copenhagen Museum, I owe to the courtesy of Prof. S. Müller.

[3] J. Naue, *Die Bronzezeit in Oberbayern* (1894).

[4] Pic, *Sorozitnosti zene Ceske*, Prague (1900), cf. *L'Anthrop.*, XII., p. 413.

[5] Much, *Die Kupferzeit in Europa* (1886); J. Hampel, "Trouvailles de l'age du Bronze en Hongrie," *Cong. Int. Anthropologie Buda Pesth*, 1876; F. de Pulsky, *Die Kupferzeit in Ungarn* (1884).

[6] J. Naue, *Die Vorrömischen Schwerter* (1903).

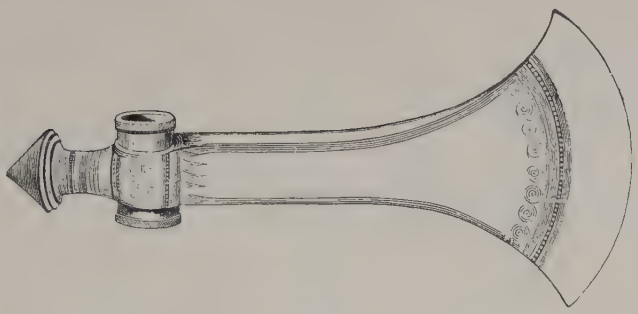


FIG. 234.—Bronze axe.

FIG. 235.—Bronze torque.

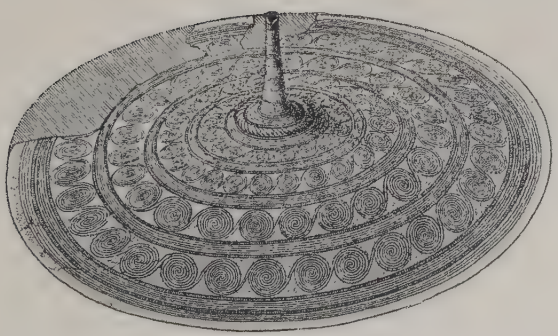


FIG. 236.—Bronze disk from a peat bog. Langstrup.

SPIRAL DESIGNS ON BRONZE FROM DENMARK.

ranean. In this region the spiral dates from a very early period, for it is found on stone objects in the Ægean Islands in pre-Mycenæan times. On stone boxes (*pyxis*) in

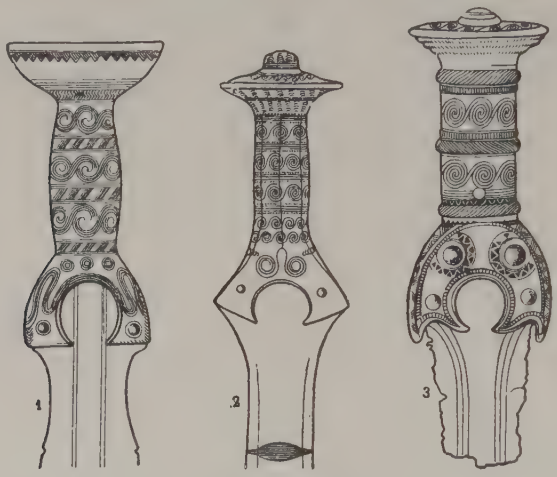


Fig. 237.—Sword handles with spiral ornament. (1) Hungary. (2) Bavaria. (3) Schleswig-Holstein.

the form of houses, one from Amorgos and another from Melos (Fig. 238), are seen uninterrupted spiral designs covering the whole decorated surface. Also on stone ornaments, and on a terracotta cover from Sikinos.[1] Curiously enough however pre-Mycenæan pottery from the Islands does not appear to show spiral ornament. It is rectilinear, the most striking design consisting of vertical lines arranged in a system, occasionally joined at the top by a

Fig. 238.—Pyxis from Melos.

[1] Chr. Blinkenberg, "Antiq. Pre-Mycen.," *Mem. Roy. Soc. du Nord* (1896), p. 25.

horizontal line. The painted pottery with spiral ornament from Melos and Thera is of later date, and if not Mycenæan, is closely allied to it.[1] Later, in the Mycenæan Age, the spiral becomes a most characteristic feature in the ornamentation of the pottery of this region.

In Britain working in Bronze to form personal ornaments as torques, bracelets, beads, etc., was much less developed than in Scandinavia and Eastern Europe. The fibula was not made in Britain, France, or Western Germany. The few specimens found were importations from Northern Italy, where the brooch not improbably originated.[2]

The pottery from the round Barrows of Britain shows no sign of spiral ornament. The same may be said of that from France and Spain,[3] and there is little more evidence of it in Scandinavia and Central Europe. It is very different when we pass to the Eastern Mediterranean, for there is nothing more characteristic of Mycenæan pottery than its spiral ornament, and Mycenæan is only another name for the Bronze Age in this region. The remarkable and surprising discoveries made in the Eastern Mediterranean region during the last quarter of a century have led to the now almost undisputed conclusion that the earliest Mediterranean Bronze Age culture is to be sought for in *Crete*, where bronze was probably in use early in the third millennium before the Christian era, and so continued for nearly 2000 years.[4] During this period art in this island attained a high development, notably so in the coloured decoration of its pottery, a characteristic motive of which

[1] *Annual Brit. Sch. Athens*, 1898-9, C. C. Edgar, "Pottery of Melos," p. 14.

[2] The fibula is dealt with at length, *post*, chap. XII.

[3] This may require modification in regard to *Spain*, see § 6, *post*.

[4] Cf. "La Crète et L'Art Mycenien," par E. Pottier, *Revue de Paris* (1902), p. 74.

is the spiral. The fondness for this ornamental motive is shown by the character and variety of the objects on which it is found, e.g. in the chieftain's grave at the necropolis of Zafer Papoma, near Knossos, even a frying-pan has the rim ornamented with an elegant running spiral design similar to that on swords from the same site :[1] and a large stone amphora found in the eastern part of the palace at Knossos, described by Sir A. J. Evans as excelling in size and magnificence any other known stone vessel of the Mycenæan Age, and evidencing the most perfect development of Mycenæan decorative art, is ornamented solely with spiral designs.[2] In fact in Crete during the Bronze Age painting, engraving, carving, moulding, inlaying, metal work and jewellery exhibit an originality, power, and taste which in several respects will bear comparison with the art of Greece at its best period.[3]

The opinion that the Spiral as an ornamental motive originated in Egypt, rests on its being found on scarabs as early as the Fifth Dynasty, though there is no evidence of the use of continuous spiral designs in that country before the Eleventh Dynasty. "For over a thousand years the spiral is only found as an accessory on scarabs, a fact which strongly suggests that it originated in this manner."[4] Crete may have received the spiral, and indeed its earliest stimulus in art from Egypt, but its subsequent artistic de-

[1] "The Prehistoric Tombs of Knossos," by A. J. Evans, *Archæologia*, LIX., Fig. 55, p. 444.

[2] *Ann. Brit. Sch. Athens*, VII., p. 91, Fig. 30.

[3] For the original accounts of discoveries in Crete consult *Ann. Brit. Sch. Athens*, VI.-XI. ; *Reale Accademia dei Lincei Monumenti Antichi*, XII.-XIV., XIX. ; and *Jo. Hell. Stud.*, XXI.-XXIII., XXVI. ; *Gournia* by H. Boyd Hawes ; *Mochlos* by R. B. Seager. A general description is given in *La Crète Ancienne* par Lagrange, *Discoveries in Crete* by R. Burrows, *Crete the Forerunner of Greece* by C. and H. Hawes, *The Palaces of Crete*, and *The Dawn of Mediterranean Civilization*, by A. Mosso.

[4] Petrie, *Egyptian Decorative Art*, p. 20.

velopment was indigenous, and was due to the gifted people who at this early period inhabited that most interesting island.[1] The desire which seems so deep and so widespread to seek for origins of all kinds in Egypt has led to the discovery of early relations between that country and Crete, and it is this connexion that has made it possible to draw up a chronology of the Cretan Bronze Age.[2]

4. *EGYPT AND CRETE.*

Intercourse between Egypt and Eastern Mediterranean lands seems to be clearly evident from the time of the Eighteenth Dynasty (*c.* 1580 B.C.). The wall paintings of the Eighteenth Dynasty tombs of Rekhmara and Senmut represent foreigners (Keftiu) bringing presents. These consist of cups and vessels of silver and gold, recalling by

[1] "Il est ouvert dès les premières origines au coté de l'Egypte, mais il deureure tout à fait original. Il emprunte à la vallée du Nil, cela parait incontestable, mais ce serait trop de dire qu'il subit son influence. On peut citer parmi les monuments Egyptiens des thèmes semblables; peut-être les crétois les ont ils connus. Mais ils ne s'en sont point inspirés; ils se sont inspirés de la nature et leur propre conception du beau" (Lagrange, *La Crète Ancienne*, p. 37).

"No impartial student of Cretan material can fail to be impressed by the freedom and genius it displays, by its essential unlikeness to the works of the Nile and Euphrates valley, by what may be called its emotional character as opposed to that which is monumental and sacerdotal" (H. K. Boyd Hawes, *Gournia*, p. 9).

[2] This chronology, due to Sir A. J. Evans, which he happily terms *Minoan*, divides the Bronze Age of Crete into three periods—*Early*, *Middle*, and *Late*. Each of these is again subdivided into three periods, usually termed I, II, and III. Nine stages are thus arrived at. Correlated with Egyptian chronology, these Cretan periods may approximately be said to correspond as follows: The Second Early Minoan Period (E.M. II) to the Sixth Dynasty, or *c.* 2500 B.C.; the Second Middle Minoan Period (M.M. II) to the Twelfth Dynasty, or *c.* 2000 B.C.; the Second Late Minoan Period (L.M. II) to the Eighteenth Dynasty, or *c.* 1580 B.C.

their shape the Vaphio gold cups of the mainland, and vessels found at Knossos in Crete. It is now generally believed that these Keftiu were Cretans, for their grouping and costume closely resemble those of figures painted on Cretan frescoes.[1] Late Cretan pottery (L.M. III) was found at Tell-El-Amarna, the city of King Akhenaten, who flourished *c.* 1380 B.C. On the other hand, Sir A. J. Evans discovered in the Royal Tomb at Knossos alabaster Egyptian vases like those from the Eighteenth Dynasty tombs at Abydos.[2] A red ware jug from Gournia is exactly like vases found at Illahum in Egypt, of Eighteenth Dynasty date.[3] In the Idæan cave in Crete were discovered bronze vases with lotus handles comparable to those of the Eighteenth and Nineteenth Dynasties: also a figurin of a swimming girl holding a dish, carved in bone, a favourite design of the Eighteenth Dynasty in Egypt.[4] From the Palace at Knossos comes an alabaster lid with the cartouche of the Hyksos King Khyan, probably of the Sixteenth Dynasty,[5] and a draught-board of ivory, inlaid with gold and crystal, suited to the Egyptian form of the game.[6]

Evidence of communication earlier than this between Egypt and Crete is not so striking, and rests largely on the discovery of fragments of pottery and stone. The presence at Abydos as early as the First Dynasty in small quantity of black incised pottery with white filling, very much like Neolithic pottery found beneath the palace at

[1] Cf. A. J. Evans, *Archæological Report, Egyptian Exploration Fund* (1899-1900), p. 60, and *Ann. Brit. Sch. Athens*, VI., p. 48.

[2] "The Prehist. Tombs of Knossos," by A. J. Evans, in *Archæologia*, LIX., pp. 536 ff.

[3] *Gournia*, by H. Boyd Hawes, p. 6, Plate VIII, Fig. 25.

[4] Petrie, *Methods and Aims of Archæology*, p. 155.

[5] *Ann. Brit. Sch. Athens*, VII., p. 65, Fig. 21.

[6] *Ibid.*, VII. (1900, 1901), p. 79, Fig. 25; *Jo. Hell. Stud.* (1901), p. 335.

Knossos, but quite unlike any other Egyptian ware, has led some to venture on the belief that there was intercourse as early as this, i.e. *c.* 3500 B.C.[1] More convincing is the evidence of intercommunication at the time of the Twelfth Dynasty (*c.* 2000 B.C., or earlier). The most striking facts in this connexion are the discovery by Petrie at Kahun of Kamarès ware,[2] and of a fine polychrome vessel by Garstang at Abydos with remains of this period.[3]

Looking on the other side of the picture, two pieces of the brims of bowls, one of Egyptian diorite, the other of liparite, of the type found at Mêdum at the close of the Third Dynasty, and Gizeh in the Fourth, were found by Sir A. J. Evans at Knossos amidst surroundings pointing to their being of earlier date than the later palace.[4] Stone vessels of very fine workmanship, though hand-made, from tombs on the adjacent islet of Mochlos, are believed by their discoverer to show connexion with Egypt at as early as the Sixth Dynasty.[5] Excavation at Knossos brought to light part of an Egyptian seated figure in diorite, bearing an inscription of Ab-neb-mes-nazet-user, probably of the Twelfth Dynasty.[6] Egyptian scarabs have been found on several sites in Crete, e.g. those of the Twelfth Dynasty at Hagios Omphrios : the evidence from scarabs must of course be received with caution as they may have reached

[1] Petrie, *op. cit.*, p. 160, Fig. 61. [2] *Ibid.*, p. 156.

[3] It is now in the Ashmolean Museum.

[4] *Ann. Brit. Sch. Athens*, VIII., p. 122, Figs. 72-74. Petrie, *op. cit.*, p. 163. Cf. also *Ann. Brit. Sch. Athens*, IX., p. 98, Fig. 67, Bowl of Egyptian Syenite found at Knossos ; and X., p. 24, Fig. 8.

[5] *The Exploration of the Island of Mochlos*, by R. B. Seager (1912), pp. 5 and 11. "Between the end of E.M. I, and beginning of E.M. II, the advance in all branches of art except that of the potter must have been astonishingly rapid, and this may indicate that Crete for the first time had been brought into contact with the older civilization of Egypt."

[6] *Ann. Brit. Sch. Athens*, VI., p. 27.

the sites where found long after the time they represent.[1] In view of these and many other similar facts there can be little doubt about there having been intercourse between Crete and Egypt in the latter part of the third millennium, B.C. Some see a confirmation of this evidence in the resemblance between the Twelfth Dynasty temple of the Hawara pyramid (the labyrinth of Egypt) and the Palace of Knossos (the labyrinth of Crete).[2]

5. *CRETAN POTTERY.*

In Crete the decoration of pottery in the Bronze Age had reached a considerable development long anterior to the time when Mycenæ flourished. A rich polychrome ware, white, red, and yellow on a black ground, the colours often in striking combination and contrast, appears to which the term *Kamarès* is generally applied from the place of its first discovery[3] (Fig. 239). The ornamentation is principally geometric, the spiral, first appearing early in the Middle Minoan period, being fairly common, with occasional plant designs. Some of the smaller vessels have walls so thin that they have been spoken of as "egg-shell" ware, and give the impression of being copies of a metal prototype. The first stages of this coloured decoration point to a natural evolution from the Neolithic pottery already described. At Knossos the polished black ware with white filled incised designs of the later Neolithic deposits is

[1] On this point see remarks by A. J. Evans in *Man* (1901), p. 138.

[2] Cf. King and Hall, *Egypt and Western Asia in Light of Recent Discovery* (1907), p. 128, and *Jo. Hell. Stud.*, XXV., p. 320; also Sir A. J. Evans in *Archæolog. Report, Egypt. Explor. Fund* (1899-1900), p. 60, "The Palace of Knossos in its Egyptian relations".

[3] *Proc. Soc. Antiq.* (1905), p. 351, Plates I-IV., "Discovery of Kamarès ware," by J. L. Myres.

followed by pottery, covered with a lustrous black varnish on the surface of which similar geometric designs were drawn in white paint which "may probably prove to be even chemically the same pigment as the Neolithic chalk."[1] Later the Kamarès ware was superseded by pottery ornamented with more naturalistic designs. It was now that ceramic art in Crete reached its highest development, approximately in the three or four centuries preceding the middle of the second millennium B.C. (Middle Minoan III and Late Minoan I). The Cretan artist now "went direct to nature for his inspiration. His designs are full of grace and exuberance; reeds, grasses, and flowers adorn his vases; the life of the sea is represented with astonishing fidelity; but his naturalism is controlled by a rare power of selection and grouping . . . with a true instinct for beauty he chose as his favourite flowers the lovely lily and iris, the wild gladiolus and crocus,

FIG. 239.—Kamarès ware.

[1] *Jo. Hellenic Studies*, XXIII., p. 162, "The Pottery of Knossos" by D. Mackenzie, who adds to this important study of Cretan pottery an article in Vol. XXVI, pp. 246 *seq.*, on "Middle Minoan Pottery of Knossos". For further information on Cretan pottery see Vol. XXI, p. 78, "Primitive Pottery in Crete" by Hogarth and Welch. Also articles by R. M. Dawkins on "Pottery from Zakro," in Vol. XXIII, p. 249; and on Pottery at Palaikastro in *Ann. Brit. Sch. Athens*, IX., p. 297, X., p. 192. For illustrations of Kamarès ware from Knossos, cf. *ibid.* X., p. 14, Figs. 4, 5, and 6, and IX., Figs. 73 (4) and (5), and from Haghia Triada, *Monum. Antichi*, XIV., Tav. 42-3.

all natives of the Mediterranean basin, and the last three, if not the lily, of his own soil"[1] (Fig. 240). It is possible to see here the source and inspiration of that Mycenæan ceramic decoration which later flourished in the Eastern Mediterranean region, though in other hands never attaining the beauty and originality of the Cretan artist. The exuberant naturalism of the best period of Cretan ceramic decoration gradually gave way to a more conventional style in which architectonic designs predominate, probably influenced by the fresco drawings of buildings. As the end of the Bronze Age approaches living forms reappear in the designs, a naturalism once again asserts itself, but it is decadent compared with that of the earlier period. It was now the time when Mycenæan culture was prominent on the mainland, and it may perhaps be permitted to see here the effect of a return wave in a decadent state

Fig. 240.—Cretan pottery with naturalistic decoration.

[1] Hawes, *Crete the Forerunner of Greece* (1910), p. 125, and cf. *Gournia*, Plates F, G, H. *Monumenti Antichi*, XIII. (1903), Tav. VII-X. *Jo. Hell. Studies*, XXII., p. 333, and Plate XII, and *Ann. Brit. Sch. Athens*, X., p. 7. For permission to copy Figs. 239 and 240 my thanks are due to the Society for the Promotion of Hellenic Studies.

of that which left Crete when its art was most virile and original.[1]

The Kamarès ware found by Petrie at Kahun, and the fine vase discovered by Garstang at Abydos, are referred to the Twelfth Dynasty, the date of which in the present disputed condition of Egyptian chronology cannot be fixed with certainty, but was some time in the latter half of the third millennium B.C. This particular pottery belongs to the best period of Kamarès ware (Middle Minoan II). It must have been preceded by a considerable period of development, so that the beginnings of painted pottery may well go back to the early part of the third millennium B.C. The potter's art, and its accompanying civilization during the Bronze Age in Crete, probably, therefore, extended over a period of more than fifteen hundred years.

6. *MYCENÆAN CULTURE.*

The *Mycenæan Pottery* characteristic of the Bronze Age in the Eastern Mediterranean is a polychrome ware either glazed or unglazed. The ground is usually yellow in tone with designs laid on in black, red, chestnut, and white. The ornamentation is largely geometric, the circle and spiral being very characteristic (Fig. 241). Natural objects are also constantly represented, both plant and animal. Those from the sea are the most common, as seaweeds, the octopus, shells, and fishes. Birds are sometimes

FIG. 241.—Mycenæan vase. Mycenæ.

[1] Cf. *Jo. Hellenic Studies*, XXXI. (1911), p. 114, and *Revue de Paris* (1902), p. 174, "La Crète et L'Art Mycenien," par E. Pottier.

portrayed, occasionally quadrupeds, and even the human form, but they are stylized or badly drawn.[1] The Mycenæan is a pure Bronze Age culture, and owes its name to Schliemann's discoveries at Mycenæ, though there is no valid reason for believing that it originated there. Its most flourishing period may be approximately fixed about 1500 B.C., for the most typical form of its pottery, the false-necked jar or *Bügelkanne* of good type, is contemporaneous with the Egyptian king, Anemophis III, who lived in the latter half of the fifteenth century B.C., and scarabs and fragments with the cartouche of this king have often been found[2] (Fig. 242). The spiral, as the most characteristic motive of Mycenæan ornament, is seen at its zenith on the beautifully carved ceiling of the tomb at Orchomenos, in Bœotia, to which allusion has already been made (Fig. 225). According to Prof. Petrie the whole pattern was taken over from *Egypt*, in keeping with his view that the source of Mycenæan designs is to be found in that country.[3] Certainly no one can contemplate the decorative designs of Eighteenth Dynasty tombs at Thebes without being impressed with the close resemblance to them of that at Orchomenos.[4] It

FIG. 242.—False-necked jar (*Bügelkanne*). Crete.

[1] Cf. Furtwängler and Loetschke, *Mykeinischen Vasen*, and Tsountas-Mannatt, *The Mycenæan Age*.

[2] Montelius, "Preclassical Chronology in Greece and Italy," *J. Anth. Inst.* (1897), p. 264, and cf. *Ann. Brit. Sch. Athens*, VIII., p. 316.

[3] *Egyptian Decorative Art*, p. 40.

[4] Cf. Prise d'Avennes, *L'Histoire de L'Art Egyptien*. The plates are not numbered in this work.

would be necessary to assume that Mycenæan influence had affected Egypt at a very early date if the opposite explanation is to be accepted. *Sicily* offers strong evidence of Mycenæan influence, but this is not the case in *Italy*. Whilst there is evidence of Mycenæan trading between the Ægean and the south-east corner of the Peninsula at Oria and Taranto, the only sign of Mycenæan culture reaching Northern Italy is the discovery of four vases at Torcello, near Venice.[1] This is all the more singular if the Mycenæan spiral found its way to Hungary and Scandinavia from the head of the Adriatic.

Towards the close of the Mycenæan Bronze Age, about the time of the appearance of the use of iron, a new style of ceramic ornamentation is observed. The Mycenæan designs are replaced by those of a markedly rectilinear character, as meanders, chevrons, diamonds, chequers, and rows of vertical parallel lines. Animal forms as birds and horses are occasionally depicted, but in a stylized manner. This style of decoration is usually known as the *Geometric*. Very often it is called *Dipylon*, after a cemetery near Athens, from which much pottery thus ornamented has been recovered. But this geometric style is not restricted to the Eastern Mediterranean region. It is found over a wide area of Central Europe during the first or Hallstatt period of the Early Iron Age. It is well represented in the pottery from the Villanova Cemetery, near Bologna, and at Hallstatt itself, where it is in close touch with the typical ornamentation of the Bronze Age of Central and Western Europe. In fact the opinion has been entertained that the geometric is a direct descendant of this Bronze Age style and not, as usually supposed, of the

[1] *The Stone and Bronze Ages in Italy*, by T. E. Peet (1911), p. 512; *Jo. Hell. Stud.*, XXIII., p. 120, "Mycenæan Vases at Torcello," by R. M. Dawkins. It has been suggested that Etruscan culture was a continuation of the Mycenæan. See Montelius, "Tyrrhenians in Greece and Italy," in *Jo. Anthrop. Inst.* (1897), p. 256.

Mycenæan.[1] This Geometric style is unrepresented in Britain.

It has been commonly assumed that Mycenæan culture reached the western confines of the Mediterranean and made itself felt on the *Iberian Peninsula*. The decoration of the pottery found by H. and L. Siret during their extensive explorations in the south-east of Spain, which revealed evidence of a considerable Bronze Age culture, gives little support to this view for the spiral is completely absent from all the ornamentation. If we are able to interpret M. L. Siret's views correctly it would appear that whilst adhering to his original opinion that the Bronze Age in South-east Spain was free from Oriental influence, in the preceding late Neolithic period, when copper was utilized, Mycenæan culture reached this region through Phœnician traders, whose chief object was to procure silver, illustrated by the articles discovered in the fortress of Los Millaros.[2] Considering the uncertainty surrounding the Phœnicians and if, as seems probable, so-called Phœnician art had no individuality, but was simply decadent Mycenæan, it seems difficult to appreciate the force of these views.[3] In the

[1] This accords with the view of Prof. Ridgeway that the use of iron found its way to the Ægean from Central Europe. The difficulty of this attractive and not improbable theory is that it necessitates an earlier date for the discovery of the use of iron in Central Europe than our present knowledge seems able to support. On the other hand, one of the prehistoric problems regarding which there is the greatest uncertainty, and further information so much needed, is the beginning of the Early Iron Age in Central Europe.

[2] L. Siret, "Orientaux et Occidentaux en Espagne aux Temps préhistoriques," in *Revue des Questions Scientifiques* (1906), p. 528; (1907), p. 219, and "Origines de Civilisation néolithique," in *Cong. Int. d'Anthrop. Monaco* (1906), II., p. 5; H. and L. Siret, *Les Premières Ages du Metal dans le Sud-Est de l'Espagne.*

[3] For some interesting and forcible remarks on the Phœnicians, cf. "La Crète et L'Art Mycenien," par E. Pottier, in *Revue de Paris* (1902), p. 194.

Bronze Age cemeteries explored by H. and L. Siret on the south-east coast of Spain, between Almeria and Cartagena, much pottery was found, amongst which were vessels of well-formed pedestal shape with incised designs in which the spiral is conspicuous by its absence (Fig. 243). There were however figurins of ivory, alabaster, and limestone recalling those of Hissarlik and the Ægean Islands (Fig. 178). Recently large quantities of painted pottery have been discovered by M. Pierre Paris on several sites, especially at Amarejo, Elche, Albera, and Meca, with spiral ornament, and plant and animal designs. It recalls very strikingly Mycenæan ware, and "the designs in which the spiral appears are those which give above all to the entire collection the impression of Mycenæan influence". Apart from its ornamentation there is however not any definite evidence of the period to which this ceramic should be attributed, and M. Paris himself says there is little evidence of the actual importation of Mycenæan ware.[1] Cyclopean buildings seen on the Peninsula, and still more strikingly so on the Balearic Isles, comparable to those of Mycenæ and Tiryns, and the presence of domed sepulchres so characteristic of Mycenæan settlements are also held to be evidence of Mycenæan culture in the Iberian Peninsula.[2]

FIG. 243.—Urn burial. Almeria, S.E. Spain, showing pottery and silver diadem.

[1] P. Paris, *L'Art et L'Industrie de l'Espagne Primitive* (1910), I, chap. I., Figs. 87-92, 131-9, 169-78, and Plate I, II, p. 119 ff.

[2] Cartailhac, *Les Ages Préhistoriques de l'Espagne et du Portugal*, p. 293, and *Monuments primitifs des Iles Baleares*, Plates.

7. *SILVER IN THE BRONZE AGE.*

The most interesting objects which MM. Siret recovered from the interments explored by them were of silver. They found silver rings, rivets, pendants, bracelets and, most striking of all, diadems still on the heads they adorned in life (Fig. 243). Silver is found in Spanish mines in the virgin state and they concluded, from the great number of silver objects found in the province of El Argar, that at this remote period the metal was more than twice as abundant as tin in this part of the Peninsula.[1] This abundance of silver at the close of the Neolithic and in the Early Bronze Age in Spain raises the interesting question whether that country was the source of the metal from which silver objects found on Mediterranean sites of this period were made. If so there must have been commercial relations in the Early Bronze Age between the countries where they are found and Spain. Articles of silver were discovered in the burnt city of Hissarlik, in the acropolis tombs of Mycenæ, and in premycenean graves of the Ægean Islands.[2] They have been recovered from several sites in Crete,[3] e.g. silver bowls from Knossos, a silver cup from the royal tomb of Isopata, another from a house tomb at Gournia, silver daggers from Kumasa, near Gortyna, a silver ring at Palaikastro. An interesting discovery, made by Sir A. J. Evans in the palace at Knossos, was of silver foil, being

[1] H. and L. Siret, *op. cit.*

[2] Blinkenberg, "Antiquités Prémyceniennes," in *Mem. Soc. Roy. du Nord* (1896), p. 45.

[3] Hawes, *Crete the Forerunner of Greece*, p. 116; *Archæologia*, LIX., Fig. 139, A. J. Evans, "The Royal Tombs of Knossos"; *Gournia*, by H. K. Boyd Hawes, Plate C, Fig. 1; Mosso, *Dawn of Mediterranean Civilization*, p. 271, Fig. 201; *Ann. Brit. School Athens*, VIII., p. 304; *ibid.* IX., p. 47, Fig. 24.

used to back plaques and a disk of crystal. In view of these last-mentioned discoveries the question may be asked, Did the Cretans get their silver from Spain? A sea-loving folk, they may have reached the extremity of the great inland sea from which their ships may have brought back silver and tin. On reaching the western end of the Mediterranean, the Spanish coast they would most probably touch is the very region where MM. Siret found such an abundance of silver, and they could hardly fail to become acquainted with it.

Elsewhere in Europe silver is exceedingly rare on Bronze Age sites. No specimen has yet been discovered in Britain, and only two in France. Of the latter, one comes from Pauillac in the Gironde, silver rivets on a dagger blade; the other from a dolmen near Quimperlé, in Finisterre; it consists of three rings of coiled silver wire joined together chainwise, the largest being $4\frac{1}{2}$ inches in diameter, the others much smaller. There is no trace of silver in the Terramare of Northern Italy. The only specimen found in the northern part of the Peninsula is a silver pin with a T-shaped head, from the Remedello cemetery, near Brescia, going back to the beginning of the Bronze Age. Up to the present there is no satisfactory evidence of silver objects being found in Scandinavia, Germany, Austria, or Hungary which can be attributed to this period.[1]

Nearly all the silver objects (goblets, flagon, cow's head, stag, sceptres, pins, bowls, and vases) found by Schliemann at Mycenæ come from two places, viz. the third and fourth sepulchres in the acropolis.[2] A small female figure in silver was discovered in the dromos of the Treasury, and in the lower town a remarkable cup

[1] A. de Mortillet, "L'Argent aux Temps Préhistoriques," in *Rev. de l'Ecole d'Anthrop.*, Paris (1903), pp. 1 *seq.*

[2] *Mycenæ*, Figs. 264, 327, 348, 353, 376, and p. 210.

inlaid with human heads in gold.[1] These silver objects are in striking contrast with the golden jewellery from the same source by the small amount of ornamentation they exhibit. One of the sceptres, a goblet, and one of the broken vessels, are ornamented with spiral designs.[2] Among the silver articles in the burnt city of Hissarlik were five silver vases, a cup and spoon, six blade-like objects, and a dagger of Cypriote type, the only one of all those showing any ornamentation is the spoon, the handle of which is engraved along the whole length with a herring-bone design terminating in spirals.[3] A curious use of silver is seen on one of the two beautiful gold bracelets

Fig. 244.—Gold bracelet piped with silver wire. Hissarlik.

found in the wall of the Royal House, it is piped with silver wire[4] (Fig. 244). With regard to the plating of silver with gold, Schliemann makes the interesting observation that the goldsmiths of the time did not know how to plate silver directly with gold, for they first covered the silver with copper on which the gold was plated[5] Three silver cups and other objects were discovered at Vaphio,[6] and many silver articles have been found in Bronze Age interments at Salamis, near Enkomi in Cyprus.[7] If the silver articles on these numerous sites were made of silver from

[1] Tsountas-Manatt, *The Mycenæan Age*, Fig. 117.
[2] *Mycenæ*, Figs. 309, 348.
[3] *Ilios*, Fig. 923.
[4] *Ibid.*, Fig. 874.
[5] *Mycenæ*, p. 218.
[6] Tsountas-Manatt, *The Mycenæan Age*, p. 145.
[7] *Catalogue of the Cyprus Museum*, by J. L. Myres and O. Richter.

Spain they afford evidence of a considerable sea-borne commerce along the whole length of the Mediterranean at this period. Considering, however, their localization in the Ægean and Cyprus, a nearer source is suggested.

8. *ROCK SURFACE DESIGNS.*

A spiral design occurs in Scandinavia engraved on bronze knives and razors. These designs are supposed to represent boats.[1] Sometimes closely associated with them

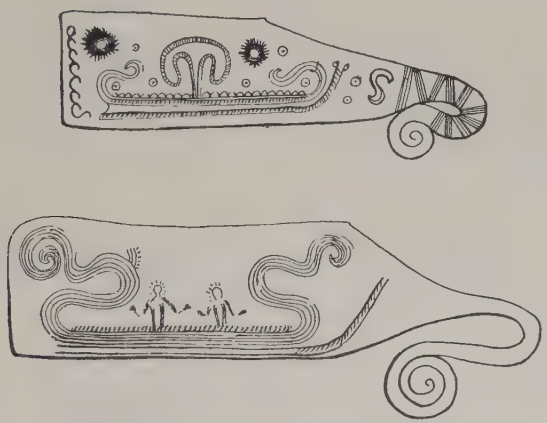


Fig. 245.—Scandinavian bronze knives with engraved designs of boats and solar disks.

are engraved circles with a dot or a cross inside, or with lines radiating from the circumference (Fig. 245). These have been interpreted as *Solar Disks*, falling into line with what is said hereafter on Sun worship. The boat itself is also a solar symbol. These designs have been cited as evidence of the existence in the Bronze Age of the myth of the Sun traversing the ocean when at night the world is left in

[1] *Les Temps Préhistoriques en Suède*, par O. Montelius, transl. by S. Reinach, chap. II., p. 125, Fig. 176.

darkness, a myth naturally appealing to a people living on coasts facing the setting sun.[1]

Similar boat designs are to be seen incised on rock surfaces in several places in Sweden. Associated with them are representations of men, animals, arms, and solar disks. They were first observed as long ago as 1627. They have been attributed to the Vikings of the sixth to the eighth century A.D. ; others have regarded them as of Neolithic age (Fig. 246). Montelius for many reasons—the character of the figures, mode of execution, shape of the celts and swords, the absence of runes, and the presence of

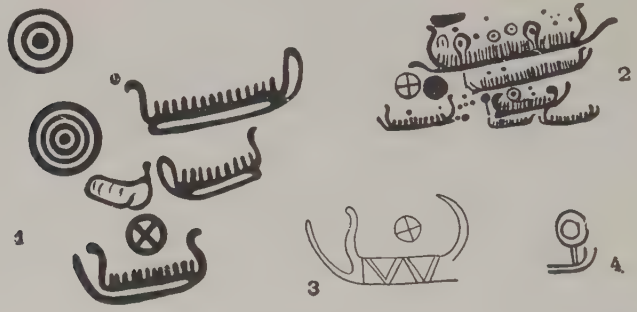


Fig. 246.—Scandinavian rock designs. (1) Norway. (2, 3, 4) Sweden.

the swastika sign—believes them to be of Bronze Age date.[2] Mr. Coffey has made the interesting discovery of a similar boat design on stone in Ireland. It is incised on the upper surface of the lintel stone of the entrance into the inner recess of the central chamber of the Dowth tumulus in County Meath. This discovery is made all the more significant by the fact that several stones within this tumulus have "sun disks" engraved upon them, in all essentials precisely similar to those observed on the rocks in Sweden.[3]

[1] *Revue Archéologique* (1909), Déchelette, "Le Culte du Soleil aux Temps Préhistoriques," and in *Manuel d'Archéologie*, II, chap. iv.

[2] *C. R. du Congrès Internationale d'Anthropologie*, Stockholm (1874).

[3] *New Grange*, Fig. 40, p. 60, and Figs. 31, 35-9.

The presence of the Swastika amongst the designs on the Scandinavian rock surfaces attaches interest to a well-known rock engraving at *Ilkley* in Yorkshire. This represents, deeply incised in the rock surface, the swastika sign in curved lines which, moreover, in their arrangement produce very nearly a spiral pattern.[1]

One of the figures amongst the *Rock Carvings at Bohuslan* in Sweden represents a warrior armed with a circular shield which has a strong family likeness to those found in Britain. Notwithstanding the simplicity and crudeness of this engraving, the concentric series of knobs, as already pointed out so characteristic, are unmistakable.[2]

[1] *Jo. Brit. Archæological Association*, xxxv., p. 18.

[2] Montelius, *Les Temps Préhistoriques en Suède*, Fig. 114, p. 92.

CHAPTER VIII.

GOLD IN THE BRONZE AGE.

One of the most surprising discoveries of the Bronze Age is the abundance of Gold which was then available for jewellery, plate, and ornament. All the more so from its frequent appearance in the earlier part of the period. Witness for example the second or burnt city of Hissarlik where Schliemann discovered such a remarkable collection of gold ornaments. Not a single bronze sword was found here, the implements and weapons being of a comparatively primitive character. Or again, the finely worked gold chains from Early Minoan tombs on the islet of Mochlos (Crete).[1] The metal worker of the earlier Bronze Age seems to have expended his artistic talents, not on copper or bronze, but on gold. It would appear that towards the end of the Neolithic Age, or in the transitional period from Stone to Metals, gold was discovered in several parts of Europe, and notably in Ireland. Found in the virgin state, and procured without the difficulties and labours of mining, it was, once its artistic capabilities were realized, eagerly sought for, and largely used.

Bronze Age gold objects have been discovered in considerable numbers in North-west Europe and in Scandinavia. The proximity of Ireland accounts for their presence in Britain and in France, and there is ground for believing

[1] *Excavations at Mochlos*, by R. B. Seager (1912), pp. 12, 104.

it was one of the sources from which Scandinavia obtained its supply of the precious metal. The many articles of gold now adorning museums, and the much greater number that have been consigned to the melting-pot coming

Fig. 247.—Gold lunula. Killarney, Ireland.

from Ireland, make the term "Prehistoric Eldorado" which has been applied to that island by no means ridiculous.[1]

While the variety, character, and ornamentation of these gold objects testify to the artistic taste and ability of the

[1] From the great Clare "find" in 1854—a hoard of gold articles in a stone cist under a cairn—the precious metal is said to have been taken away in barrowfuls. A hoard discovered near Athlone in 1860 is computed to have been of the value of £27,000. See *Pagan Ireland*, by Wood-Martin, chap. xi.

Bronze Age people, their distribution may throw some light on their commercial relations, and trade routes. Reference has already been made to the *Lunulæ*, or *Crescents*, on which the characteristic chevron design is so well shown (Fig. 247). There can be little doubt that these orna-

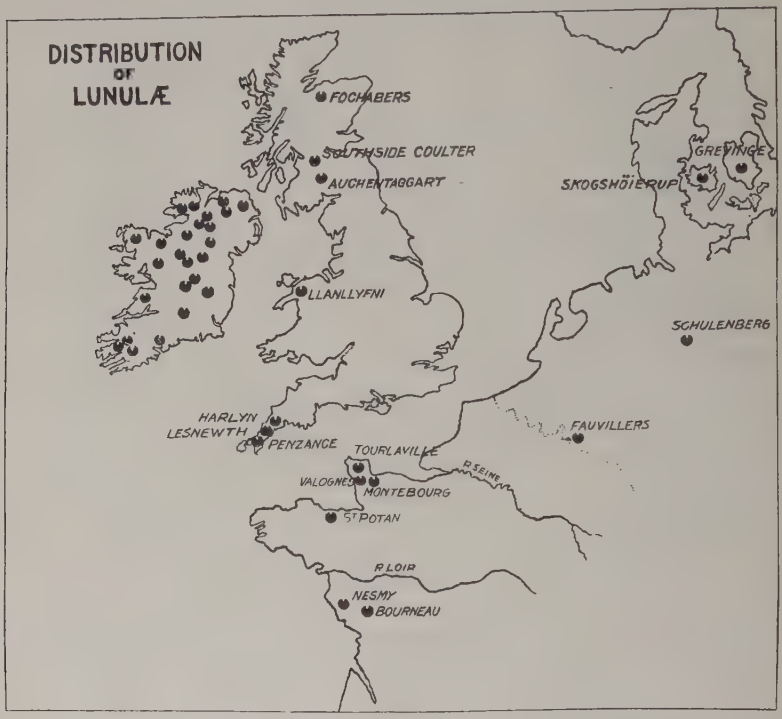


Fig. 248.—Map showing distribution of lunulæ. (After Coffey.)

ments originated in Ireland, and spread thence to Scotland, Denmark, Wales, Cornwall, and North-west France. Their distribution will be seen at a glance on the accompanying map (Fig. 248).[1] At least sixty-three have been

[1] *Proc. R. Ir. Acad.* (1909), xxvii., Sec. C, p. 231, "The Distribution of Gold Lunulæ in Ireland and North-west Europe," by George Coffey. For this map my thanks are due to Mr. G. Coffey and the Royal Irish Academy.

PLATE XIII

Gold Lunulæ. Harlyn, Cornwall. (*From a photograph by Mr. G. Penrose.*)

found in Ireland, and there are thirty-two specimens now in the National Museum, Dublin. There are also four in the Edinburgh Museum, two in the Museum of the Royal Institution of Cornwall at Truro (Plate XIII),[1] and eleven at the British Museum. Apart from the numerous sites in Ireland, there are three in Scotland, one in Wales in Carnarvonshire (Fig. 249), three in Cornwall, all near the sea, and two of them on the north coast not far from

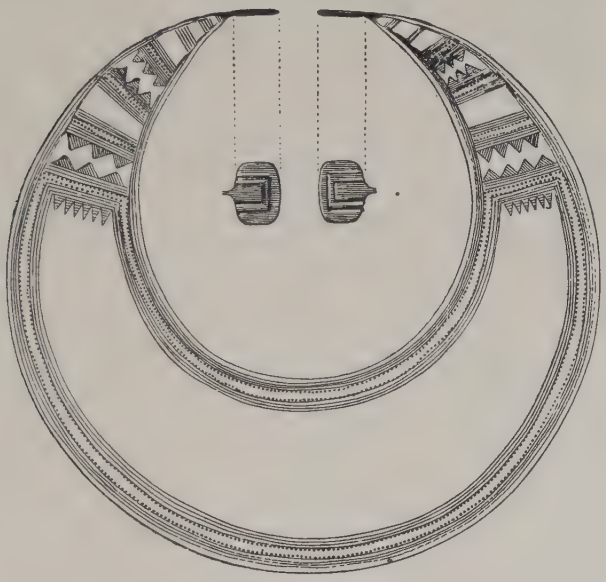


Fig. 249.—Gold lunula. Llanllyfni, Wales.

natural harbours. With the two specimens found at Harlyn in Cornwall was a bronze celt of an early type. Outside the British Isles six lunulæ have been found in France in the coast departments of Côtes du Nord, Manches, and La Vendée, one in Belgium at Fauvillers, another at Schulenberg in Hanover, and two in Denmark in the islands of Funen and Zealand. It is significant that

[1] This plate is from a photograph most kindly taken for this work by Mr. G. Penrose, the Curator of the Truro Museum.

Cornwall is on the direct route from Ireland to the north coast of Brittany, and Scotland on that from the north of Ireland to Denmark. Assuming the Lunulæ to have originated in Ireland, of which there can be little doubt, their distribution affords good evidence of commercial relations in the Bronze Age between that country and Britain, and indirectly at least with North-west France and Denmark. In fact the conclusion that they were a product of Ireland, whence they were exported to the different countries where they have been found, is suggested by a study of their ornamentation which shows a remarkable similarity on specimens from distant sites. The engraved chevron designs are in many instances practically identical. The distribution of other gold ornaments also leads us to infer that Ireland was the source of the gold from which they were made, if not of the articles themselves. For example, of the fifteen French departments in which gold "finds" of the Bronze Age have been made, twelve are in Normandy, Brittany, and La Vendée.[1] Here again the similarity of the style and workmanship of the decoration is quite remarkable, e.g. the ornamentation on a curious tubular object found at Poitiers is absolutely identical with that on a gold cap from Ireland[2] (Fig. 250). The Irish Bronze Age gold objects show an extraordinary variety and richness. Among them are bracelets, amulets, dia-

Fig. 250.—Gold. Poitiers. 21 inches long, 5 inches diameter at base.

[1] Déchelette, *Manuel d'Archéologie*, II., p. 348.

[2] Cf. Borlase, *Dolmens of Ireland*, Figs. 537, 541.

dems, rings, beads, earrings, and occurring in large numbers, one of curious shape, which Sir William Wylde probably identified correctly as a simple form of fibula or brooch.

It is by no means certain how the Lunulæ or Crescents were worn, though some writers by calling them gorgets, and French authors hausse-cols,[1] appear to have no doubt about the matter. Resplendent in the sunlight they would certainly be more striking worn on the head, and with an appropriate coiffure much more effective and ornamental. That they were worn in this way is supported by three figures with crescents on their heads on a sculptured cross at Clonmacnoise, in Ireland, and also by the way in which similar ornaments were worn in later times. Moreover the internal circuit is different in different specimens, and in size and shape bears no relation to the size of the entire object.[2]

In addition to what has already been said regarding rock engravings and lunulæ, *communication between Ireland and Scandinavia* in the Bronze Age is further supported by the discovery in Sweden, Jutland, and the island of Zealand of early Bronze Celts of a form recognized as characteristic of Ireland. Montelius infers their Irish origin not only from their form, but also from the small amount of nickel they contain, compared with the metal from Central Europe generally used in Scandinavia at this time.[3] Also in a most striking manner by a recent discovery in the island of Zealand. In 1902, at *Trundholme*, in the north of this island, a curious and interesting object

[1] Déchelette, *op. cit.*, p. 353 ; Reinach, *Revue Celtique* (1900), pp. 66 and 176.

[2] Cf. Sir W. Wylde, *Catalogue (Gold) of Museum Ro. Irish Academy*, p. 12.

[3] *Archiv f. Anthropologie* (Braunschweig), XXVI., p. 15, Fig. 154 ; p. 501, Fig. 294.

was recovered from a bog. It is a little six-wheeled bronze carriage, carrying in front a horse and behind an upright circular *bronze disk*, about 15 inches in diameter, one face of which is still partly covered with gold leaf (Fig. 251). The disk has two lugs. By one it was fixed to the carriage, to the other a rein from the horse was attached. The disk is really composed of two plates united by a band round their edges. The surface of each of these plates is engraved with an interesting design in which the spiral prominently

Fig. 251.—Sun disk on carriage. Trundholme, Zealand, Denmark.

figures. The pattern on both sides is essentially the same. It is composed of a series of concentric circles in the middle : separated from these by circular bands is a running spiral design : outside this also separated by bands is a zone of a series of concentric circles. The difference between the two patterns is in the central spiral design, which on one side is composed of a continuous returning involved spiral, on the other of continuous C-spirals (Figs. 252, 253). This singular little carriage appears to have been intentionally broken, suggesting that it was a votive offering, and the design on the disk, if indicative of sun worship,

supports such a view of its meaning.[1] Two similarly ornamented disks have been discovered in Ireland. One of

FIG. 252.—Design on Trundholme disk.

these, $2\frac{3}{4}$ inches in diameter, has the two lugs, but all evidence of the carriage on which it was fixed has disappeared (Fig. 254). The gold covering the surface, if it ever existed, is also wanting, and there is no spiral ornament. A single zone of a series of concentric circles lies between a centre of concentric circles and a chevron border. The other is a *gold-leaf disk*, $2\frac{1}{2}$ inches in diameter, with two zones of series of concentric circles surrounding a centre of concentric circles (Fig. 255). The surface is convex. Ireland contributes two other *gold*

FIG. 253.—Design on Trundholme disk.

[1] S. Müller, *Urgeschichte Europas*, Tafel II., p. 116. By the kindness of Prof. Sophus Müller the illustration in the *Guide to the Copenhagen Museum* is here reproduced (Fig. 251).

disks, 2·8 and 1·7 inches in diameter respectively. They are flat and ornamented with a cross, also a symbol of the

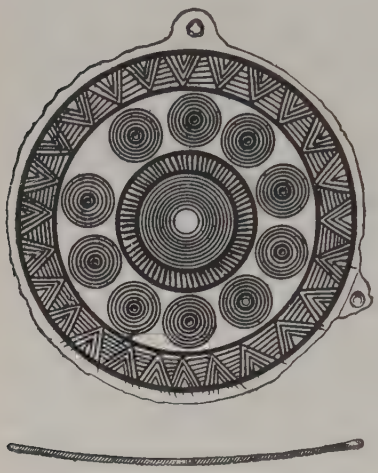


Fig. 254.—Bronze disk. Ireland.

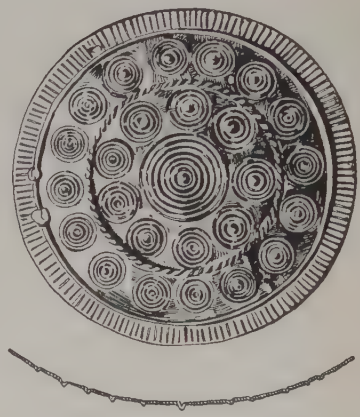


Fig. 255.—Gold-leaf disk. Ireland.

sun (Fig. 256). Another gold disk, 2 inches in diameter, comes from the Isle of Man. Its centre is plain, but there are three concentric rings of dots near the edge. The striking similarity of these bronze "sun discs" is strong corroborative evidence of communication between Ireland and Denmark in the Bronze Age, and are also evidence of the existence of Sun worship in both those countries at this period.[1]

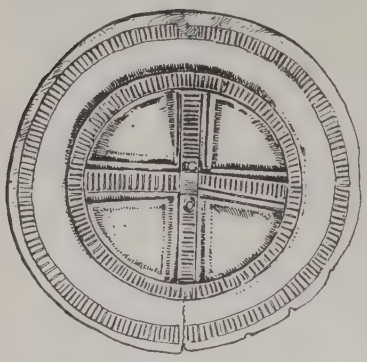


Fig. 256.—Gold sun disk. Ireland.

The wide *distribution of gold in Britain* in the Bronze

[1] *Proc. Soc. Antiq.* (1903), second series, xx., p. 6, Figs. 2, 3, 5, 6, 7, and Plate, R. A. Smith, "Sun Disks of the Bronze Age in the British Museum"; *Revue Archéologique* (1909), p. 309, Déchelette, "La Culte du Soleil aux Temps Préhistoriques".

Age is shown by the discovery of ornaments of the precious metal in no less than fifteen English counties, from Cornwall and Kent to Northumberland, and in nine

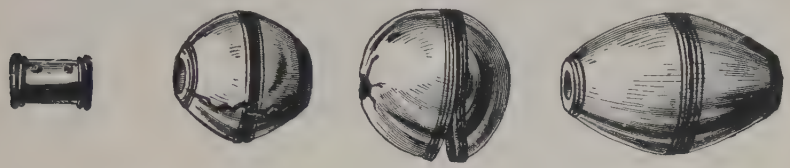


Fig. 257.—Gold beads. (1) Upton Lovel. (2) Normanton (Wilts). (3, 4) Bircham (Norfolk). (Actual size.)

Scotch from Lanark to Orkney and even Lewis.[1] These ornaments include beads (Fig. 257), bracelets, plates,

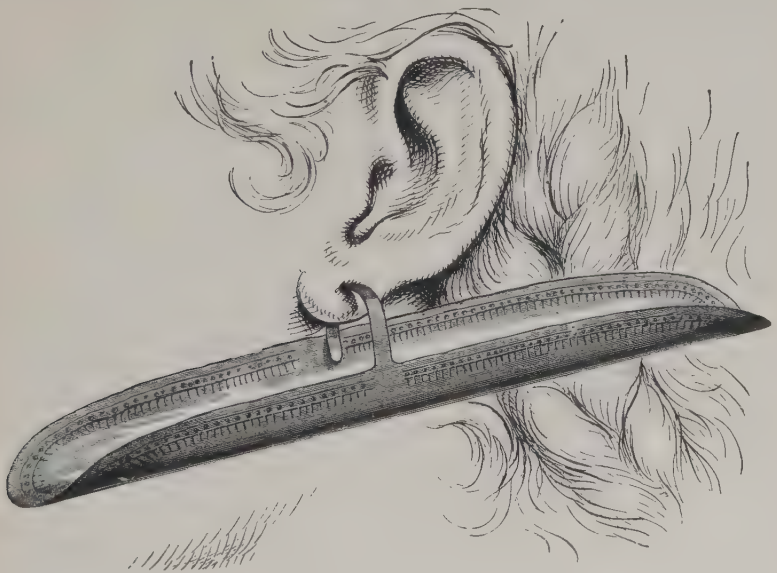


Fig. 258.—Gold ear-ring. Orton, Moray, Scotland. (Natural size.)

boxes, and a very singular gold ear-ring somewhat boat-shaped from as far north as Orton in Moray (Fig. 258).[2]

[1] A gold bead was in the Adalcock hoard found in Lewis, *Proc. Soc. Antiq. Scot.*, XLV. (1910), p. 33, Fig. 11.

[2] *Archæologia*, XLIII., Figs. 215-7, 221.

A bronze spearhead dredged up from the Thames is decorated near the base with two gold studs.[1] Not the least interesting ornaments from Bronze Age barrows in Britain are engraved *gold plates*. They have been found in Norfolk, Dorset, and Wiltshire. In Bush Barrow, Normanton, Wilts, resting on the breast of the body was a lozenge-shaped plate of gold measuring $7\frac{1}{4}$ by $6\frac{1}{4}$ inches. There were two holes at the top and the bottom, and the edge lapped over a piece of wood. Round it near the edge is a band composed of four parallel incised lines. Within this at equal distances are three other similarly formed bands. The two outer are connected by a line chevron.[2] "The extreme accuracy and perfection of the engraved lines could not be surpassed by a modern engraver." Another plate of like shape, and ornamented in the same way was in the Clandown Barrow, Mastertown, Dorsetshire. Each side measures $3\frac{3}{4}$ inches. In this specimen there are six successive bands of four parallel engraved lines, and in the centre are similar ones arranged to form a cross-pattern. In Gold Barrow, Upton Lovel, Wilts, containing burnt remains, was another plate of gold leaf measuring $5\frac{3}{4}$ by $2\frac{3}{4}$ inches. It originally covered a plate of wood. The character of the ornament is essentially like that of the preceding, namely bands of four parallel incised lines. The bands are, however, arranged vertically parallel to one another, and are crossed by two horizontal bands of chevrons also formed of four parallel engraved lines. "Though severely simple in design the execution is exceedingly careful, the lines being cut with absolute accuracy and precision, testifying to long practice on the part of the artist." The technique of these designs is on

[1] *Brit. Mus. Guide—Bronze Age*, Fig. 45.
[2] *Ancient Wilts*, Plate XXVI, Fig. 2.

the whole the same as that used in decorating the Lunulæ or Crescents. Careful examination reveals, however, a minute difference, which is worth noting, in the plate from the Clandown Barrow. The incised lines are filled with minute punctures at short intervals. Similar punctures are visible on two lunulæ found in Scotland, one at Coulton in Lanarkshire, the other at Auchentaggart, Dumfriesshire. None of the lunulæ at Dublin, or in the British Museum show this punctuation. It is probably therefore a later development.

In a barrow at Cressingham in Norfolk with an unburnt burial was a similar oblong gold plate with bars of engraved lines one within the other (Fig. 259). It measures 3½ inches long by 2½ wide. With it was a bronze dagger 8½ inches long.[1] In the Clandown Barrow were also *lignite cones* (1⅜ by 1¼ inch) covered with gold leaf, and a large jet globular object with gold bosses possibly the head of a *sceptre* or staff.[2]

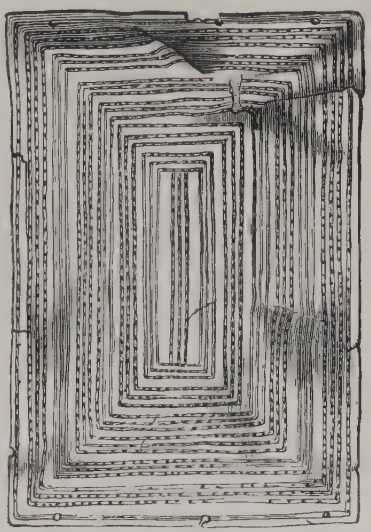


Fig. 259.—Gold plate. Cressingham, Norfolk. (Two-thirds size.)

One of the most remarkable discoveries of Bronze Age gold was made in a cairn near Mold in Flintshire in the year 1835. It is a *gold peytrel* mounted on copper, and measures 3 feet 7 inches in length and is 8 inches deep. It is incomplete, but sufficient remains to show how it was used, and the size of the animal for which it was adapted.

[1] Abercromby, *Bronze Age Pottery*, I., p. 137, Plate LX, o_{26e}; II., p. 10 and pp. 61-3, Plate CVIII, o_{1a}, o_{1b}, o_{2a}, o_{2b}.

[2] *Archæologia*, XLIII., Figs. 158 and 219.

It is elaborately ornamented, as the illustration well shows, with rows of embossed round, oval, and square "nail-head" elevations, separated by raised lines. The artist's fondness for delicate workmanship, and his power of executing it, are revealed by the fine lines of minute embossed dots with which the ridges of the "nail-head" bosses are ornamented[1] (Plate XIV),[2] (Fig. 260).

Fig. 260.—Gold peytrel. Mold. Showing how it was used.

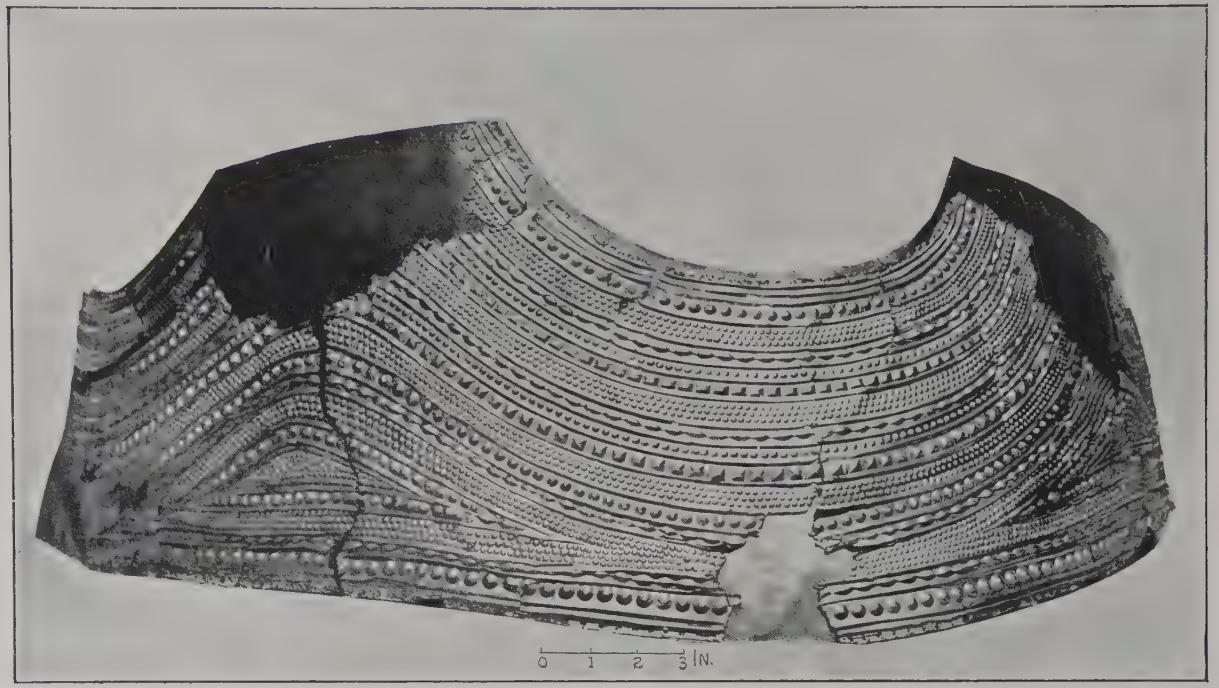
The gold lunulæ from Cornwall have already been mentioned. Other finds of gold have been made in the same county. Six gold bracelets were discovered together at Cairn-Morvah in the parish of Morvah, and one of the most interesting metal objects ever found in Britain comes from near *Cheesewring* in the parish of Linkinhorne. It was a *Gold Cup* taken from a cistvaen under a cairn in 1818 (Fig. 261). With it was a bronze spearhead 10 inches long. Three and a half inches high and nearly as wide at the mouth, this cup weighed 2 ounces 10 pennyweights. The bottom is rounded, showing that it was not intended to stand upright: it was no doubt suspended by its handle, which is fixed by six rivets. The cup is circularly fluted from top to bottom, and strikingly resembles a gold cup discovered by Schliemann in the fourth grave of the acropolis at Mycenæ; this has the same fluted body and riveted handle.[3] Before this cup was discovered there was a tradition in the neighbourhood that a golden boat was once found in a cairn near Cheesewring.[4] In this

[1] *Archæologia*, xxvi., p. 422, Plate LI.

[2] Reproduced by permission from the *Brit. Mus. Guide to the Bronze Age*.

[3] *Mycenæ*, Fig. 340, p. 232.

[4] W. C. Borlase, *Nænia Cornubiæ*, p. 460.



Gold Peytrel. Mold, Wales. (From *Brit. Mus. Guide to the Bronze Age.*)

connexion may be mentioned two little *gold boxes* an inch in diameter ($\frac{3}{4}$ inch high) with conical lids found in the Gold Barrow, Upton Lovel, Wilts.[1] These also recall a little gold box with a lid discovered by Schliemann in the third shaft grave at Mycenæ.[2]

As another example of the technical skill of the Bronze Age gold worker in Britain may be instanced the *inlaid*

Bottom of cup.

FIG. 261.—Gold cup. Cheesewring, Cornwall.

dagger handle taken by Sir Colt Hoare from the barrow at Normanton, Wilts, previously referred to (Fig. 262). The singular ornamentation of this handle cannot be better described than by quoting the discoverer's original account of it. "It exceeds anything we have yet seen," he says, "both in design and execution, and could not be surpassed, if equalled, by the most able workman of modern times. You recognized the British zig-zag, or the modern van-

[1] *Bronze Age Pottery*, II., p. 62, Plate CVIII, Fig. 01c.
[2] *Mycenæ*, Fig. 321, p. 207.

dyke pattern, which was formed with a labour and exactness almost unaccountable, by thousands of gold rivets smaller than the smallest pin. The head of the handle, though exhibiting no variety of pattern, was also formed by the same kind of studding. So very minute indeed were these pins that our labourers had thrown out thousands of them with their shovels, and scattered them in every direction before, by the necessary aid

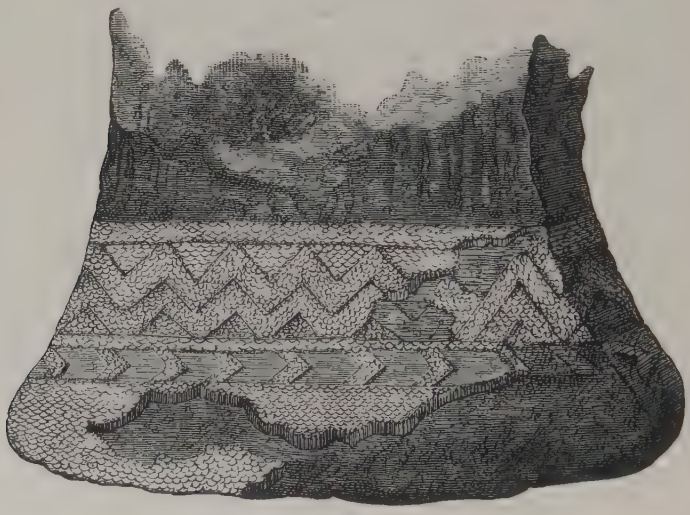


FIG. 262.—Dagger handle. Normanton, Wilts.

of a magnifying-glass, we could discover what they were, but fortunately enough remained attached to the wood to enable us to develop the pattern."[1] A similar method of decoration is seen on the pommel of *another dagger handle* from a barrow at Hammeldon Down in Devonshire. The pommel is of red amber, and is inlaid with small pins of gold on its top and sides. They are so inserted as to form bands composed of three parallel lines. On the top

[1] *Ancient Wilts*, I., p. 201, Plate XXVII.

the bands are arranged in the form of a cross (Fig. 263).[1] It is extremely interesting to compare with these dagger handles others ornamented in exactly the same way which have been found in Western Brittany. M. Aveneau de la Grancière discovered no less than six examples, all of them with interments beneath a barrow. Four of them

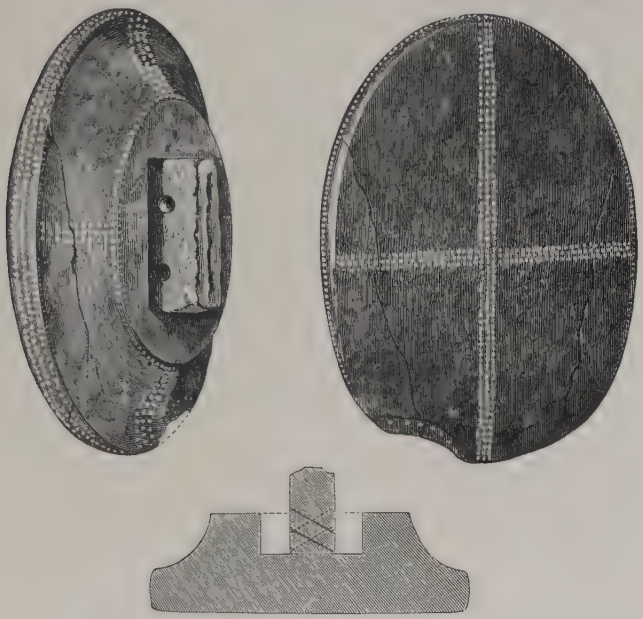


Fig. 263.—Dagger handle. Red amber and gold. Hammeldon Down, Devonshire. (Natural size.)

come from the Department of Côtes du Nord, situated immediately opposite the coast of Devonshire, and the other two from the adjoining Department of Morbihan. He found, also in Côtes du Nord, five other daggers, the wooden scabbards of which were similarly ornamented with minute gold nails. The burials with which these

[1] *Trans. Devon Association*, v., p. 555 ; and see Evans, *Bronze Implements*, Fig. 284, p. 229.

daggers were deposited appear to date from an early period of the Bronze Age.[1]

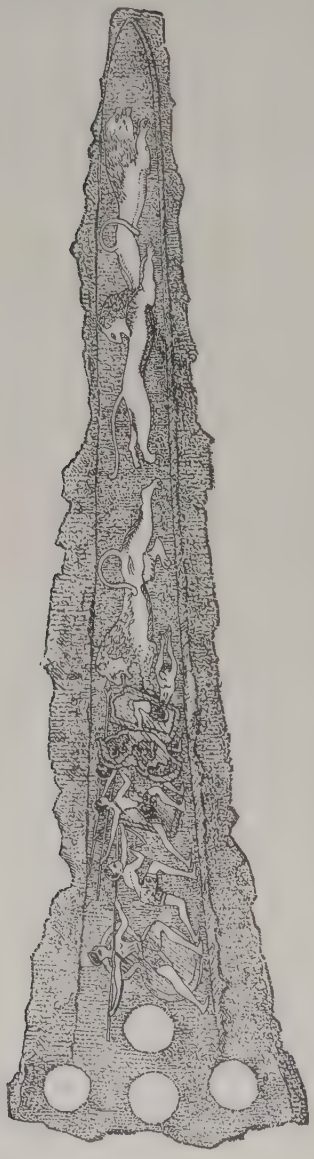


Fig. 264.—Inlaid dagger blade. Mycenæ.

This inlaying appears, it is true, somewhat primitive beside Mycenæan work such as the *dagger blades inlaid with gold and silver* from the acropolis graves of Mycenæ. A dagger blade from the Fourth Sepulchre is inlaid on one side with gold and silver to represent a lion hunt, three animals and four men being depicted. The lions and men are in gold, the dress of the latter being in silver (Fig. 264). On the other side are a lion and five gazelles, one of whom is seized by the lion, the others are running away. On another blade from the same grave, three lions, one behind the other, are inlaid in gold of different tints. In the Fifth Sepulchre was *another dagger blade*, even more remarkable. Both sides are inlaid to represent quite an elaborate scene of large cats or panthers hunting ducks near a stream which is of inlaid silver. In the water are fish and plants. The cats, plants, and bodies of the ducks are of gold, the wings of the ducks, like the stream, are in silver, the fish

[1] *L'Anthropologie*, x. (1899), p. 578.

in some dark material. The pose and movements of the animals are very natural and show no small ability on the part of the artist who executed the work.[1] A sword blade from the island of *Thera* is inlaid on both sides with gold axes of peculiar shape. Another fine example of inlaying from Mycenæ is a *Silver Cup* found in a chambered tomb in the lower tower. It is inlaid with a row of heads and leaves of gold.[2]

In a tomb at Vaphio[3] near Amyclæ, in Laconia, were discovered two *Gold Cups* which have often been spoken of as the masterpieces of Mycenæan art, and equal to the

Fig. 265.—Gold cups from Vaphio.

best goldsmith's work of the Italian renaissance (Fig. 265). Each of these cups consists of two gold plates, an inner one, smooth and turned over at the top to form the brim, and an outer bearing in repoussé a remarkable design in which the chief figures are bulls. On one cup the scene represented is a fight between bulls and men, one of the animals has been caught in a net, another has just tossed a man. The scene on the other cup is of a more peaceful character. One animal is being led away, perhaps for sacrifice, the others stand quietly by. The realism evinced in the

[1] Schuchhardt, *Schliemann's Excavations*, Figs. 227 and 270.
[2] Tsountas-Mannatt, *The Mycenæan Age*, Figs. 117-118.
[3] *Ibid.*, *op. cit.*, Plate XIX, and Figs. 113-114.

designs on these dagger-blades and cups, and the high artistic skill with which they are executed, have led to the belief that they were importations into the mainland of Greece from elsewhere. The character of Minoan art, and the high level it reached in the Bronze Age, lend strong support to the view, widely entertained, that the place of their manufacture was the island of Crete: all agreeable to what has already been said regarding the relation of Minoan to Mycenæan art.

The predominance of the spiral motive in Mycenæan ornament is well exemplified in the *Stone Stelæ* of the acropolis graves at Mycenæ.[1] On these large spaces are covered with continuous running spirals almost to the exclusion of all other ornamental motives. At Tiryns the spiral is seen as the predominant motive in a wall painting[2] (Fig. 266). But it is on the gold objects found in the acropolis graves in such extraordinary number and exhibiting such magnificence, skill, and taste that the spiral so strikingly manifests itself. No one can study this splendid collection of jewellery without being convinced that the spiral as an ornamental motive was veritably ingrained in the mind of the Mycenæan artist. Schliemann might well speak of the passion of the Mycenæan artist for spirals, and the eagerness of the Mycenæan goldsmith to convert everything into them. The spiral is also seen on the jewellery discovered at Hissarlik, and it is interesting to note the different way in which it was produced on these two sites. At Mycenæ seen on diadems, cups, plates, disks (Figs. 267, 268), buttons, leaf-shaped and other ornaments it

FIG. 266.—Wall painting. Tiryns.

[1] *Mycenæ*, Figs. 140-2. [2] Schuchhardt, *op. cit.*, Fig. 100, p. 169.

FIGS. 267 and 268.—Gold disks. Mycenæ.

is generally in repoussé, whilst at Hissarlik it is laid on by means of wire, with very few exceptions (see Fig. 244). There has been a good deal of discussion as to how these repoussé designs were produced. One suggestion is that the gold leaf was laid on a block of lead, and the ornamentation hammered or pressed into it. Another is that the pattern was first carved in relief on a wooden core to which the gold plate was firmly attached, and then pressed down upon it, the lines being followed with a pointed instrument until the pattern was fetched up to the surface.[1] The extreme thinness of many of the objects seems to make some such method the only possible one. The latter method was clearly the one adopted in making the beautifully ornamented gold covered wooden buttons found by Schliemann in the IV Sepulchre.[2]

It must be admitted that the gold ornaments found at Mochlos, Haghia Triada, and Zafer Papoma in Crete, while showing considerable resemblance to those from the acropolis tombs of Mycenæ, cannot be said to show any superiority in workmanship or design ; in fact, if anything, they appear to be inferior in these respects.[3]

[1] Schuchhardt, *Schliemann's Excavations*, p. 253.

[2] *Mycenæ*, Fig. 377, p. 260.

[3] *Jo. Hell. Stud.*, XXVIII., p. 327 ; *Monum. Antichi*, XIV., Figs. 61, 62, 66 ; Evans, "Prehistoric Tombs of Knossos," in *Archæologia*, LIX., Fig. 119.

CHAPTER IX.

AMBER AND JET IN THE BRONZE AGE.

1. *AMBER.*

Among the ornaments most prized and sought for in prehistoric times were those made of Amber. Since this substance is almost wholly found in only one very restricted area in Europe, its presence in other parts of the Continent is an indication of communication, direct or indirect, between them and its place of origin. This is on the southern coast of the Baltic and on the North Sea coast near the mouth of the Elbe. It is occasionally picked up on the east coast of Britain. As might be expected, therefore, its earliest appearance in connexion with prehistoric man is in Scandinavia. Here there can be little doubt that it was known and used in the Neolithic Age, for well-formed amber buttons and beads occur in gallery tombs of Sweden.[1] There is very little, if any, certain evidence of amber occurring elsewhere in Europe associated with the remains of Neolithic man. On the other hand, when we pass to the Bronze Age, there is abundant evidence of Amber having found its way from the Baltic to many parts of Europe. It was then so valued that it had evidently become an important article of commerce, and it is possible, with some confidence, to trace the routes by which

[1] S. Nillson, *Les habitants primitifs de la Scandinavie*, p. 109, Plate IX.

it was transmitted, especially towards the south. Probably the earliest route was to the Black Sea by the valleys of the Vistula and Dniester. But more important were the routes by which the head of the Adriatic was reached and the countries round the Mediterranean supplied. There appear to have been two such routes, one by the valleys of the Elbe and Moldau and the Tyrol, the other from the Baltic by the valley of the Oder, Moravia, Styria, and Carniola. It was at the southern termination of these two routes at the head of the Adriatic that the principal market for Amber was established, which accounts for the erroneous opinion of classical authors that its place of origin was in this region.

It is from its presence in interments that our knowledge of Amber in prehistoric times is almost solely derived. In the Bronze Age it is found generally in the form of *Beads* and *Necklaces*. It is somewhat remarkable in view of its principal source being Scandinavia, and that it occasionally occurs on the east coast of Britain, that the Bronze Age interments which, in this country, have yielded Amber, are nearly all south of the Thames, and these far away from the east coast, the majority of them, in fact, being in Wiltshire. This may be due to the extensive excavation of the tumuli of that county carried out long ago by Sir Colt Hoare, who found Amber associated with thirty-three interments, six of which were cremations. Some of these were probably of later date than the Bronze Age. Another singular fact about the Amber with these interments is that it is always of the red variety. Several of the Wiltshire burials which contained gold beads also had amber ones. In the Gold Barrow at Upton Lovel, Wiltshire, which we have seen contained several articles of gold, and from the richness of its contents is supposed to have been that of an important chieftain, were thirteen gold beads, and no less than 1000 beads of Amber

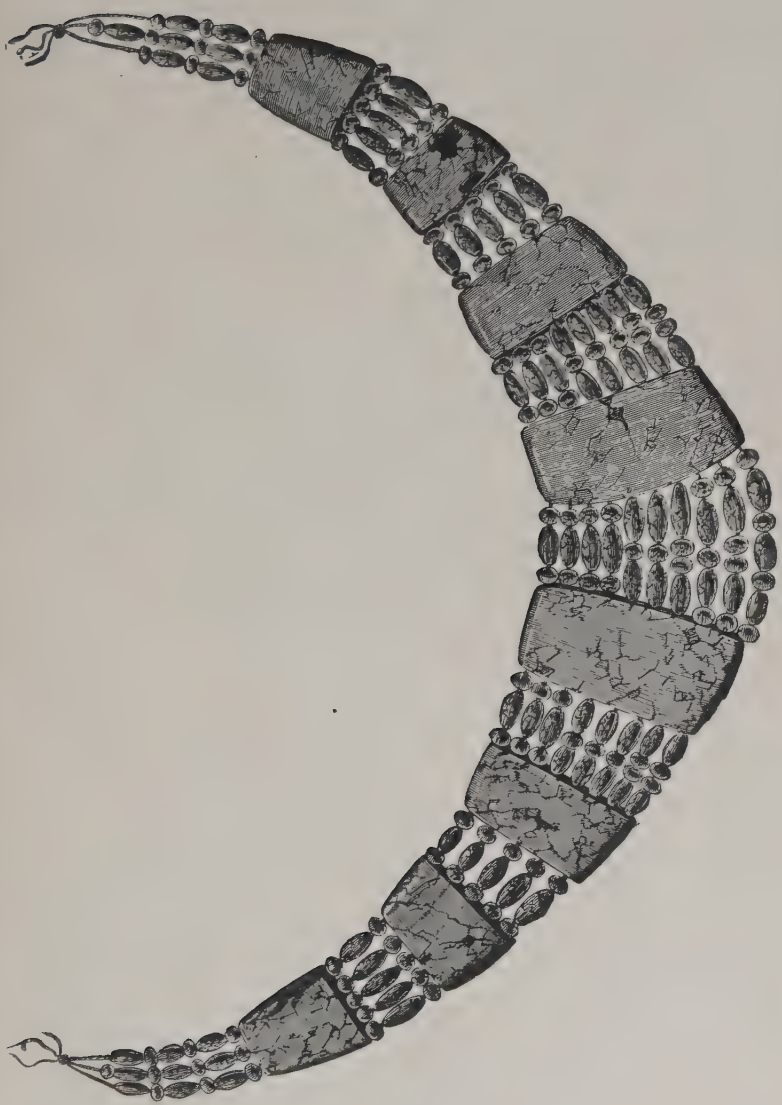


Fig. 269.—Amber necklace. Lake, Wilts—restored. (One-third size.)

which had formed a necklace.[1] In a barrow at Lake in Wiltshire, with several gold disks, was a magnificent *Amber Necklace*, composed of eight rectangular flattened plates of graduated size, and oval and spherical beads, nearly 200 in number (Fig. 269). If the restoration of this necklace is correct, it must have measured 25 inches in length and 15 inches across. The character of its workmanship may be judged by the fact that each of the smaller plates, only $\frac{1}{4}$ inch thick, is perforated by five circular canals which are bored with great accuracy. In the four larger and more

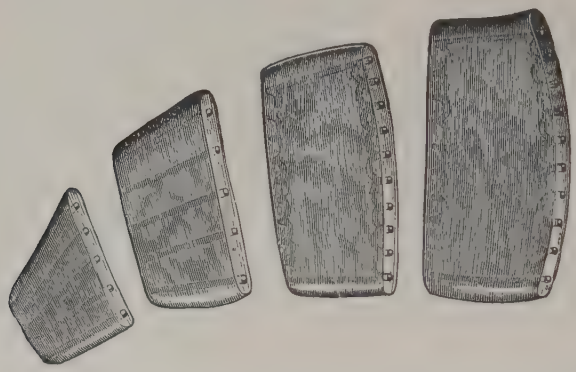


Fig. 270.—Plates of amber necklace. Lake, Wilts. Showing the position of the perforations. (Two-thirds size.)

central plates only the upper and lower perforations run right through, whilst the eight which are intermediate go a little way in and pass out again, each two adjoining perforations communicating right and left by a curvilinear canal (Fig. 270). This must have been an exceedingly delicate and difficult piece of work, and Dr. Thurnam says that the clever mechanic who imitated these plates under his directions in

[1] The association of amber with gold in interments points to the high regard for it as an ornament at this period. Schliemann was struck with the same fact at Mycenæ, where he found many hundreds of amber beads associated with the profusion of gold ornaments in the sepulchres of the acropolis (*Mycenæ*, pp. 203, 245).

boxwood, found it impossible to copy the curvilinear canals, and he was unable to conceive by what means they were formed.[1] One of the few instances of amber being found in a Bronze Age barrow north of the Thames was at Cressingham in Norfolk which, as we have seen, contained articles of gold. With these was an *amber necklace* included in which were six amber rings. But the rarest find of amber in Britain is a *cup*, $2\frac{1}{2}$ inches high, $3\frac{1}{2}$ inches wide, and $\frac{1}{10}$ inch thick, found in a barrow at Hove in Sussex[2] (Fig. 271). It ac-

Fig. 271.—Amber cup and handle. Hove, Sussex.

companied an interment in an oak coffin, and with it was a bronze dagger nearly six inches long, and a double-edged stone axe. This cup is well finished, is quite smooth inside and out, and the handle is engraved with fine lines along the edges. It seems to be unique among prehistoric articles made of amber, but resembles a wooden cup, in the shape both of the body and handle, discovered in the Guldhoi, Ribe Amt, Denmark.[3] The question arises whether these amber ornaments were imported as such from Scandinavia, or

[1] *Archæologia*, XLIII., p. 505 *n.*, Figs. 198, 199.

[2] Evans, *Ancient Stone Implements of Great Britain*, Fig. 367.

[3] A. P. Madsen, *Fund af Egekester fra Bronzealdern i Danmark* (1896), p. 76, Plate XIV, Fig. 3.

only the unworked amber obtained from the same source; or on the other hand whether they were not made on the spot from pieces picked up on the east coast. Considering the probability of amber being more commonly found on the east coast of Britain in ancient times, it seems unnecessary to assume its importation. Ornaments of *Jet* and *Lignite*, and cups of *Shale*, made no doubt from native material, show that the British Bronze Age craftsman was capable of working in amber, and could have made the ornaments found.

2. *JET.*

Jet has been found in a good many barrows. It is the materials of which ornaments found in the barrows of Derbyshire, Yorkshire, and Northumberland are made. Some fine necklaces of this material have been discovered

FIG. 272.—Jet necklace. Assynt, Ross-shire, Scotland.

with interments (Fig. 272). Bateman found six formed of two to eight rows of beads separated by plates, ornamented as already illustrated with chevron designs produced in a peculiar way by fine white dots. These *plate necklaces* have not been found farther south than Cambridgeshire. None have come to light from the Wiltshire barrows, though Sir Colt Hoare found small articles of jet—as

beads, *buttons*, and *rings*—associated with twenty-nine interments, of which twenty-two were cremation. Jet necklaces have been discovered on many sites in Scotland as far north as Ross-shire and Sutherland, and in Wales as far west as Holyhead. At Upton Pyne in Devonshire a necklace composed of fifty thin circular beads of *shale* or *lignite* was found with a cremated burial.

CHAPTER X.

THE EARLY IRON AGE.

1. *THE DISCOVERY OF IRON.*

Where iron was discovered, or at least where it was first known and used, is a question which has been much discussed, especially in regard to Egypt. The contention that iron was used by the Egyptians at a very early period, even as far back as the Fourth Dynasty, is based chiefly on indirect evidence. It has been argued, for example, that weapons coloured blue or black on ancient paintings were of iron, and that iron is referred to on inscriptions and in Egyptian myths. The only pieces of the actual metal referable to a time so ancient are a lump found in the south gallery of the Gizeh pyramid, the antiquity of which is disputed,[1] a small piece discovered with copper tools by Petrie at Abydos,[2] and iron beads recently discovered in predynastic graves at El Gezeh.[3] The oldest iron implements yet found in Egypt appear to be a halberd discovered by Petrie at Abydos of the time of Rameses III, or about 1200 B.C.,[4] and the nails in a coffin in the necropolis of Gourmah at Thebes dating from the

[1] Cf. *L'Anthropologie*, XXII. (1911), p. 703.

[2] *Abydos*, II. (1903), p. 33.

[3] *Man* (1911), 100, "Predynastic Beads in Egypt," by G. A. Wainwright. From Prof. Gowland's analysis these beads are not of the pure metal, but of ferricoxide.

[4] *Abydos*, II., Plate XXII, Fig. 10.

Twenty-second Dynasty, or about 1000 B.C.[1] Iron ore is abundant in the valley of the Nile, and it is difficult to believe that if the Early Egyptians had really learnt to work the metal, and make tools of it, they would still have continued so exclusive a use of bronze, and that no remains of these iron implements would have been recovered. The argument that all such iron implements have disappeared through oxidation is not worth serious consideration in a dry climate like that of Egypt, and in view of the fact that iron weapons are found in abundance at Hallstatt after being buried nearly 3000 years.[2] It is not a question of mere knowledge of the existence of the metal, or even possession of lumps of it, probably of meteoric origin, as a curiosity, but of its use for the manufacture of tools and weapons. This is the really important point, and it may safely be said there is not satisfactory evidence of such use of iron in Egypt until the twelfth century before the Christian era. Once the use of iron was discovered its superiority over bronze for cutting instruments would soon be obvious. Consequently bronze would gradually be displaced by iron for their manufacture. And it is inconceivable that after this discovery had been made, those having a knowledge of it would ever revert

[1] J. de Morgan, *Recherches sur les Origines de l'Egypte*, p. 214. Cf. *Man* (1903), 86, "The Early Use of Iron in Egypt," where Mr. H. R. Hall says: "In the long tribute lists of the Eighteenth Dynasty iron is never mentioned, but under the Nineteenth Dynasty it occurs in the religious text at Abu Simbel, in which the god Ptah is made to say that he has formed the limbs of King Rameses II of electrum, his bones of bronze, and his arm of iron. This is the oldest literary mention of iron, with regard to which there has never been any doubt whatever." Mr. Hall returns to the subject in *Man* (1905), 40 [in reply to Prof. Montelius in *Man* (1905), 7], where his remarks on the early working of iron in Egypt are particularly unconvincing.

[2] Cf. Montelius, "L'Age du Bronze en Égypte," *L'Anthropologie*, I., 27, and *Man* (1905), 7.

to the use of the softer and less effective copper and bronze.

2. *THE TRANSITION FROM BRONZE TO IRON.*

There would no doubt be a period, longer or shorter, of transition, during which bronze and iron were in use side by side. This transition stage passed we emerge into the *Iron Age.* Throughout Europe this change occurred at a time of which there is no historic record. The prehistoric period, lasting from the first use of iron for the manufacture of cutting instruments down to the dawn of history, is therefore known as the *Early Iron Age.* It is a time of much interest from an artistic point of view, especially in Britain, where it is also known as the *Late Keltic Period.*

The fortunate discovery of a large cemetery at *Hallstatt*, in Upper Austria, near Salzburg, and about forty miles from Noricum, where probably lay the earliest iron workings in Europe, has revealed interesting evidence of the transition from the use of bronze to that of iron. In this part of Central Europe lived a people, even then possibly working the salt mines for which it is famous, who were using tools and weapons of both bronze and iron. The iron swords moreover are sometimes fashioned after a bronze model, and iron celts are copies of the more ancient ones of bronze. There were two methods of burial in use, and the interments of each are about equal in number, Cremation, characteristic of the Bronze Age, and Inhumation, which replaced it when iron came into use.[1] The Hallstatt cemetery covers a period dating from

[1] Von Sacken, *Das Grabfeld von Hallstatt* (1868); Hoernes, "La Necropole de Hallstatt," *Cong. Int. d'Anthrop.*, Monaco (1906), II., p. 75; "Die Hallstatt periode," *Archiv f. Anthrop.*, Braunschweig (1905), p. 233.

about 900 to 700 B.C. The time of events described in Homer's *Iliad* apparently belonged to this transition period, for weapons of bronze and iron were both in use, and iron appears to have been a comparatively rare metal.[1] On the plateau of *Glasinatz*, in Bosnia, there are no less than 20,000 tumuli, most of which contain more than one interment. This extraordinary necropolis, which has been only partially explored, also illustrates the transition from bronze to iron and, as at Hallstatt, both cremation and inhumation were practised, and bronze and iron objects are found together. It probably represents a period of several centuries which may be put approximately as 800 to 500 B.C.[2]

3. *THE EARLY IRON AGE. LA TÈNE PERIOD.*

This transition period is not well represented in Britain, and the time when the Early Iron Age began there is uncertain. About 400 to 300 B.C. seems most probable, and Sir John Evans gives important facts in support of it.[3]

One of the most remarkable finds referable to the Early Iron Age was made near Marin at the north end of the Lake of Neuchatel in Switzerland, on a spot known as *La Tène*. So characteristic, indeed, have the discoveries made here been regarded that the term "La Tène" is

[1] Bronze is mentioned 320, iron 23 times in the *Iliad;* in the *Odyssey* the numbers are 90 and 25 respectively, J. D. Seymour, *Life in the Homeric Age* (1906). For discussion of this subject cf. Ridgeway, *Early Age of Greece*, pp. 294, 303-7, and A. Lang, *Homer and his Age*, pp. 176-208.

[2] A succinct and interesting account is given in Munro's *Rambles in Bosnia, Herzegovina, and Dalmatia* (1895), and by S. Reinach in *L'Anthropologie*, v., p. 563.

[3] *Ancient Bronze Implements of Great Britain*, p. 472. Montelius's latest date of 800 B.C. is not generally accepted

often used to denominate the Early Iron Age, or rather the later part of it, on the Continent.[1] The earlier part of the Early Iron Age, known as the *Hallstatt* period, is represented in Britain only by sporadic finds, as e.g. a sword in the Thames, a cordoned bucket at Weybridge, and paradoxically enough by more numerous examples of swords and buckets in Ireland.

It is proposed to confine attention to the Early Iron Age as it existed in Britain, for undeniably in no other region of Europe does the art of this time show more individuality and interest. Here it is often spoken of as the *Late Keltic* period, a convenient term which we shall adopt in the following pages.[2]

The evidence of the existence of an Early Iron Age in Britain is drawn from objects discovered in barrows, camps, burials, lake dwellings, settlements, and scattered finds. It is from a study of the form and decoration of these objects that our knowledge of the artistic skill and taste of the inhabitants of our islands at this period is drawn.

[1] For details of the discoveries at La Tène, cf. Munro, *Lake Dwellings of Europe*, p. 277, and Keller, *Lake Dwellings of Switzerland*, p. 121.

[2] See the remarks of Sir A. W. Franks in *Horæ Ferales*, pp. 184-9, and *Archæologia*, XLV., p. 265.

CHAPTER XI.

LATE KELTIC ART.

Late Keltic Art shows a remarkable advance on that of the Bronze Age in Britain. No longer generally restricted to geometric designs formed with straight lines and dots, we now find ornamentation composed of curved lines, often forming a *scroll pattern* which is most characteristic. The beauty of the designs, the skill, firmness, and unerring accuracy with which they are executed, are such as to make them able to bear comparisons with the best artistic designs of antiquity, and to excite the admiration of the modern artist. This artistic skill had reached its highest development before the Roman Conquest, and in its best period was independent of foreign influence. It may, therefore, be claimed as an indigenous art, and shows that, in prehistoric times, the natives of Britain attained, in some respects, a level of artistic taste and skill which has not been surpassed at any subsequent period.

These curvilinear designs so characteristic of Late Keltic Art are found ornamenting a great variety of objects as sword sheaths, mirrors, horse trappings, shields, torques, fibulæ, pottery, wood, and stone. A few examples of these will now be considered in illustration of what has just been said.

1. *SWORD SHEATHS.*

In a crannog discovered in 1882 at Lisnacroghera, near Broughshane, County Antrim, Ireland, were several objects affording interesting examples of the use of bronze and iron side by side. There were spears with iron heads fixed by bronze rivets and provided with bronze butts, a plain bronze sheath containing an iron sword with bronze mounts, and two highly ornamented bronze sheaths which, no doubt, once enclosed iron swords. The ornamentation of both these scabbards well illustrates the curvilinear designs in which the Late Keltic artist delighted, and the saying that he would never use a straight line if a curved one was possible. One of them is engraved over its whole length with a most elegant, symmetrical scroll pattern. We see here graceful curves converging and diverging in so fugitive a manner that it is difficult to describe the design which, however, produces a most pleasing impression, one, moreover, which remains and is felt to be characteristic (Fig. 273). The decoration of the other is composed of a series of gradually diminishing involved C curves, with much smaller, somewhat similar ones filling the spaces between them. At the bottom of the scabbard are remains of settings of enamel which, however, has lost its colour. The lines of the design are "sharply and deeply incised, and appear to have been intended for the reception of enamel of a black shade, some traces of which appear here and there"[1] (Fig. 274). This was evidently not true enamel, but *niello*, a composition of silver, copper, sulphur, and lead. Sword sheaths with a running scroll pattern ornament have been found in several places on the other side of St. George's Channel, notably at Bugthorpe[2] (Fig. 275), near

[1] Wood-Martin, "The Lake Dwellings of Ireland," p. 66, Plates XII and XL, and Fig. 199.

[2] *Proc. Soc. Antiq.*, 2nd Series, I., p. 263 (1860).

FIG. 273.

FIG. 274.
Lisnacroghera, Co. Antrim, Ireland.

FIG. 275.
Bugthorpe, E.R. Yorkshire.

LATE KELTIC BRONZE SWORD SHEATHS.

Stamford Bridge in the East Riding of Yorkshire, and at Hunsbury Camp near Northampton[1] (Fig. 276). The former of these is further decorated with two pairs of little coloured disks fitted by means of central pins. The latter

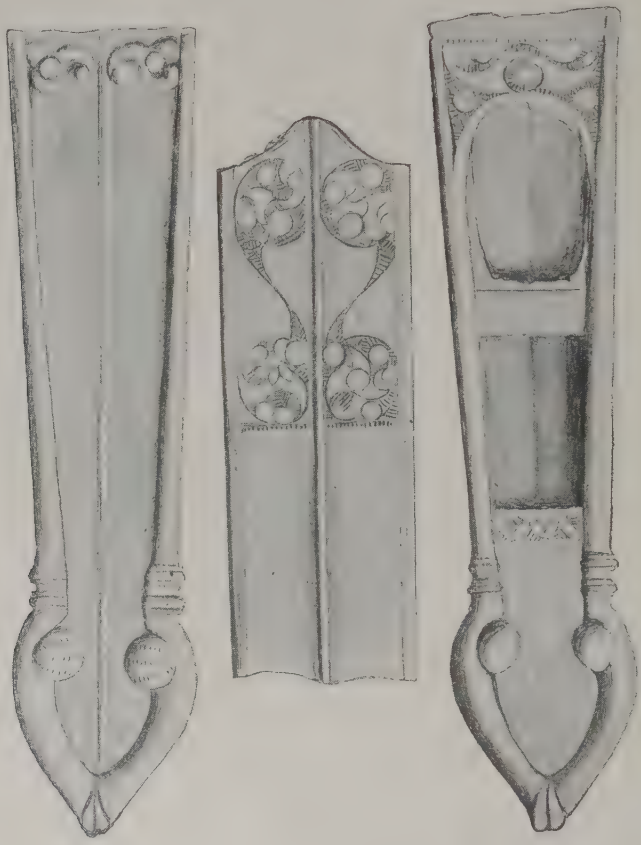


FIG. 276.—Bronze sword sheath. Hunsbury Camp, Northampton.

shows engraved scroll designs both at the top and lower down on one side and a raised curvilinear ornament on the other. A dagger sheath from the river Witham near Lincoln shows a curled pattern in bold relief, with engraved

[1] *Associated Architectural Societies*, XVIII., p. 53; *Archæologia*, LII., Plate XXV.

scrolls, and another from the Thames at Wandsworth has its chape ornamented with mock spirals.[1] The shading or "filling" of much of this scroll work is composed of alternate series of parallel, vertical, and longitudinal lines, the so-called basket pattern which is often seen in engraved designs of this period, and nowhere more consistently than on those ornamenting the backs of bronze mirrors.

2. *BRONZE MIRRORS.*

Not the least interesting and important objects by their general character and, above all by their ornamentation, betraying their Late Keltic origin, are a number of bronze mirrors which have come to light in widely-separated districts of Britain. At Trelan Bahow, St. Keverne, Cornwall, in 1865, a bronze mirror was discovered in a shallow cist grave, with rings of bronze, parts of fibulæ, and beads of variegated glass (Fig. 277). The disk is circular in shape and measures 6 inches in diameter. The handle, loop-shaped, is $2\frac{1}{2}$ inches long. Two incised circles touching one another

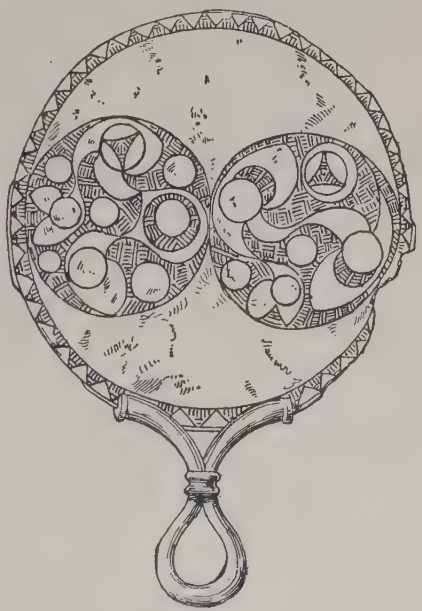


FIG. 277.—Bronze mirror. Trelan Bahow, Cornwall. (One-third size.)

[1] For further illustrations of Late Keltic decoration of sword sheaths in Britain see *Horæ Ferales*, Plate XVIII, and *Archæologia*, XLV, p. 265.

partly fill up the back of the disk. These circles are engraved with scroll designs filled in with basket-work shading. The border has a chevron design shaded in the same way.[1] A similar discovery was made in the same year at Stamford Hill, near Plymouth. In one of a number of grave pits unearthed here was a bronze mirror 8 inches in diameter. These graves also contained broken pottery, bronze fibulæ, and bracelets, and the handles of two other mirrors. The handles are loop-shaped, and measure 6 and 4 inches long respectively. The scroll patterns ornamenting the back of this mirror are enclosed in three circles, and are shaded in exactly the same way as the Cornish example. Folded over the margin of the disk is a ribbon of metal forming a border or rim. Commenting on the discovery of this mirror, Sir A. W. Franks remarked that "the mirrors of unquestionably Roman origin found in England and the Continent may be divided into the following classes: (1) quadrangular mirrors without handles; (2) circular mirrors fitting into cases of the same form; (3) circular mirrors with handles, but without marginal bands, the edges often pierced. These mirrors are of whiter metal than those found at Plymouth, more like modern spectrum metal, and probably contain a larger amount of tin. The only other mirrors with ornamented backs are Etruscan."[2]

The finest of these Late Keltic mirrors comes from a grave, in which a woman had been buried, at *Birdlip*, in Gloucestershire, at the foot of the Cotswold Hills (Fig. 278). It was part of the remarkable find made here in 1879. With the mirror were a bronze bowl of beautiful workmanship resting on the face, a silver gilt fibula, a knife handle ending in a horned head, and other bronze objects, also

[1] *Archæological Journal*, XXX., Plate, p. 267.
[2] *Archæologia*, XL., p. 500.

several large beads of red amber, two of jet and one of marble, evidently of a necklace. This mirror is quite complete except for the absence of a part of the rim. It is oval in shape, measuring $10\frac{5}{6}$ inches wide by $9\frac{3}{4}$ inches deep, and

Fig. 278.—Bronze mirror. Birdlip, Gloucestershire.

weighs $38\frac{1}{4}$ ounces. The back is engraved with charming curvilinear ornamentation in the form of a triple scroll design, with the usual basket-work shading. Above the attachment of the handle on both faces is a triple arrangement of trumpet-shaped scrolls in relief, the three enclosed spaces being each decorated with two red enamelled dots.

The handle of solid bronze is directly continuous with the border. It takes the form of a double loop ending in a ring which encloses a disk decorated with two red enamelled dots, exactly like those on the mirror. It is the most elaborate and elegantly-designed handle of all these mirrors yet discovered.[1]

An almost exact replica of the Birdlip mirror was recently discovered at Desborough in Northamptonshire. It was found quite alone in 1908 and in an excellent state of preservation, better than that of the Birdlip specimen, but is without the enamel decoration. It is oval in shape measuring 10¼ by 9¼ inches. The handle 6 inches long is very much the same shape as that of the Birdlip mirror, and above it is a similar trumpet scroll pattern in relief. The back is also engraved with very similar but more delicate scroll designs.[2]

Fig. 279.—Bronze mirror. Balmaclellan, Kirkcudbrightshire, Scotland.

Another of these mirrors was uncovered during the excavation of the Warden tunnel on the Midland Railway, near Bedford. It is 7¾ inches in diameter, and the back is engraved with a trumpet-shaped design produced by zigzag work executed with much delicacy and precision. It has a looped handle on which are traces of enamelled spots like those on the Birdlip specimen.[3]

Scotland supplies another example. It was recovered from a bog in the parish of Balmaclellan, Kirkcudbright-

[1] *Bristol and Gloucester Archæological Society*, v., p. 157; a fine illustration of it is given in *Archæologia*, lxi., Plate 42.

[2] *Archæologia*, lxi., p. 329, Plate XLIII.

[3] *Archæological Journal*, xxxi., p. 71.

shire (Fig. 279). With it were other bronze objects, the most interesting being part of a crescentic collar-like plate, decorated with striking Late Keltic ornament recalling the involved circles on the Lisnacroghera scabbard. The disk is 8 inches in diameter with a rolled border, and differs from the preceding in being unengraved. The handle, 5 inches long, is also plain, but it is pierced with three segmental orifices together forming the curves of divergent spirals. The ornamental part of this mirror consists of a plate that hides the riveted union of handle and disk (Fig. 280). This beautiful little piece of work is described by

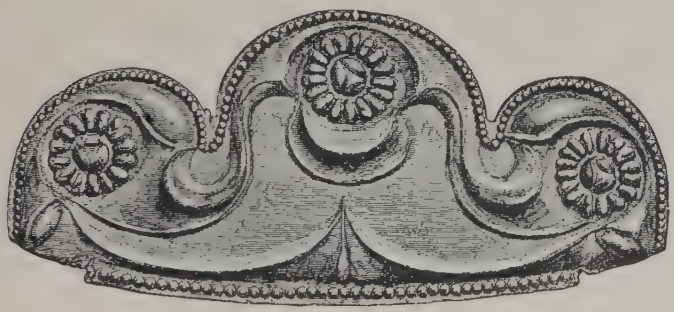


Fig. 280.—Ornamented plate of Balmaclellan mirror.

Dr. Joseph Anderson as "presenting a pattern composed of those peculiar raised surfaces formed by the meeting of curves rising from the flat at different angles, and traversing the ground also in curves which converge and diverge in a manner pleasing to the eye, but difficult to describe. The upper part of this plate is trilobate, the lobes bounded by curves of peculiar form, and bordered by an edging of studs embossed on the metal."[1]

A bronze mirror with a triple scroll pattern engraved on the back, and recalling strikingly the design on the

[1] *Scotland in Pagan Times, Iron Age*, p. 127, Figs. 103, 104. Figs. 278, 279, 280 are from this work.

Trelan Bahow example, is now in the *Mayer* Museum at Liverpool. Whence it came is not certainly known, but possibly from the Thames.[1]

Two incomplete mirrors found at *Billericay*, Essex, in 1860 (one oval in shape 7½ inches wide and handle 4 inches long, the other circular, diameter 6¼ inches, and handle 2½ inches long), are engraved with scroll-work design, with the basket-work shading. A fragment of another mirror discovered at Rivenhall, near Witham, in the same county, in 1848, shows that the disk of which it formed a part was ornamented in a similar way. In the same county again from Colchester comes an imperfect specimen which shows similar scroll design, but it is notable for the fact that the shading is not of the usual basket-work pattern, but of an imbricated one. It has a well-formed handle 6 inches long. With this mirror was a pedestal vase, and a cup with a handle ornamented with a piece of coral.[2]

The wide distribution of these mirrors, their similarity in shape, border, and character of the handle, but above all in their ornamentation, its design, style, execution, and shading, point to their being the product of a common and widely diffused artistic taste and skill. They in fact point to the existence of a distinct and characteristic school of art to which the term Late Keltic is conveniently applied.

The production of such artistic works as these mirrors in Britain at so early a period appears at a first glance so unexpected and surprising that it is not to be wondered at they should be considered as importations from the Continent. All the more so when it is remembered how much

[1] *Archæological Journal*, xxv., p. 72, *n.*

[2] *Proc. Soc. Antiq.*, 2nd Series, xx., p. 214. Mirrors with plain backs were discovered at Portland and Glastonbury, and fragments of several from unknown sites are to be seen in museums. A mirror handle found at Jordan Hill, Weymouth, is quite different in shape from the usual form: cf. *Archæologia*, lxi., p. 329.

bronze mirrors were used by the Etruscans and Romans. As the British mirrors were probably made quite or almost down to the Roman Conquest, the most natural foreign source would be Roman. Very little consideration is required to prove that this view is untenable. Roman mirrors of circular shape were often fitted with cases, those without had no marginal border, and moreover were made of a whiter metal, and further were not ornamented on the back. The engraved back of the British mirrors recalls the Etruscan which were elaborately ornamented with engraved or embossed designs, generally of mythical scenes, and the handles were often of ivory or bone. There is no parallel to this in the more simply decorated British mirror. Examination of what may be called the accessory ornament, that merely of a decorative character, is more suggestive. The borders of many Etruscan mirrors are ornamented with a running spiral engraved design which in some cases slightly suggests the Late Keltic scroll pattern.[1] To this extent they may be said to support the view of those who discern Etruscan influence in Late Keltic Art, but such influence must have been remote, and the comparison really serves to emphasize the distinctive and characteristic nature of Late Keltic ornament.

3. *SPOON-SHAPED OBJECTS.*

This conclusion is supported by the study of a number of curious, small and otherwise unimportant objects of unknown use, though they are distinctly spoon-shaped. They have never been found in company with anything indicative of Roman or Christian times. We can in fact judge

[1] Cf. Gerhard, *Etruskische Spiegel*, Plates 160, 206, 225, 229, 274 Fig. 1, 294, 299, 422 Fig. 1.

of their origin only by the character of their workmanship and decoration. Judged by the latter characteristic there can be little hesitation in coming to a decision, for it is most distinctly Late Keltic. These singular objects have

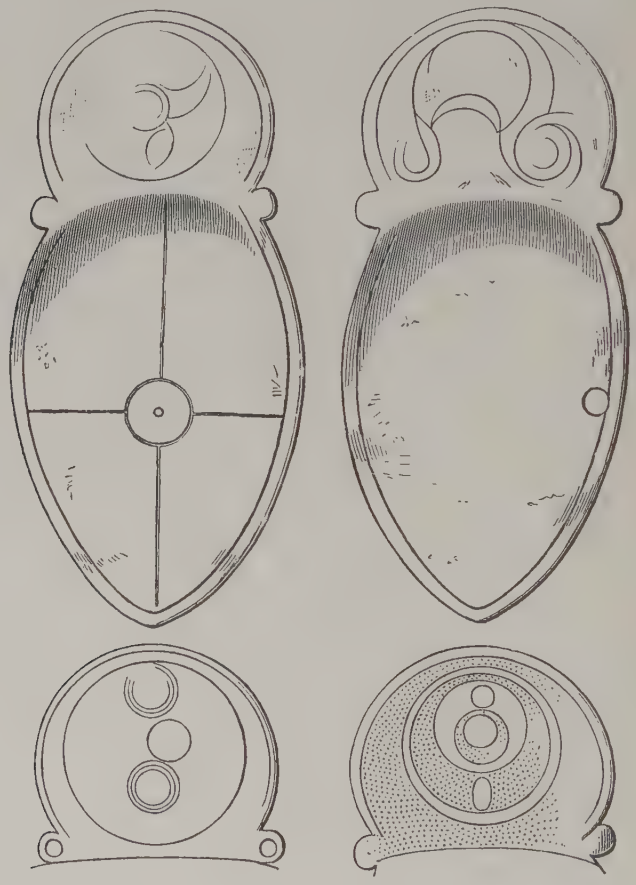


FIG. 281.—A pair of Late Keltic spoon-shaped objects. Ireland.

been found in England, Wales, and Ireland, but never in Scotland. Single specimens were discovered in the Thames, at Brickhill in London, and in a turbary in Ireland. The others were in pairs, and evidently they were always so made, but this only makes an explanation

of their use more difficult. Of two pairs found in Wales, one comes from Penbryn in Cardiganshire, the other from Llanfair in Denbighshire. Another pair was discovered

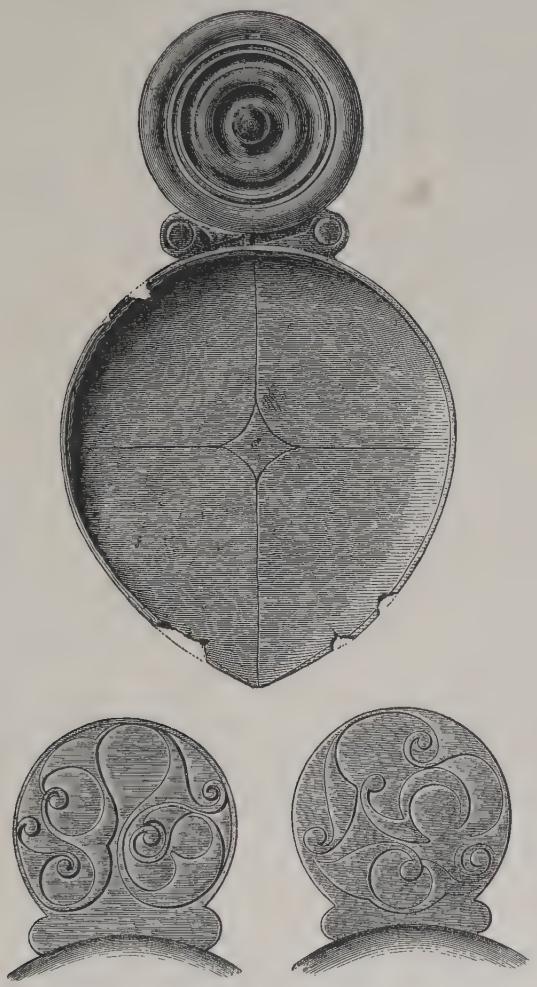


Fig. 282.—One of the Weston "spoons". Backs of the two handles.

in Ireland (Fig. 281). Three pairs are from English sites, viz. Deal, Crosby Ravensworth, Westmoreland, and Weston, near Bath. The last mentioned, discovered in 1866, are remarkable for the perfection of their workman-

ship. In the case of a pair, one of the concave spoon-like surfaces is engraved with two lines in the form of a cross. In some cases at the middle of the cross there is a small engraved circle : in the Weston example the space thus left is quadrangular. A curious feature which increases the mystery of their use is the presence of a small circular hole near the edge in one of each pair. The ornamentation pointing to their Late Keltic origin is limited to the small circular or semi-circular handle. The character of this is unmistakable (Fig. 282). In the Weston specimen for example the backs of both handles are ornamented with typical Late Keltic curvilinear involuted designs which, although at a first glance appear similar, are really different. The exact dimensions of these examples, which do not differ very much from those of the others, are as follows : Length $4\frac{3}{8}$ inches, diameter of handle $1\frac{1}{2}$ inches, of the bowl a little over $2\frac{1}{2}$ inches. "In execution they are peculiar ; there is only a very slight degree of relievo in the ornament, in some parts only the field is slightly depressed, in others the effect is assisted by a slight rounding-off of the edges of the design, a process frequently made available by artificers of a much later period, and wholly distinct school of metallurgical manipulation, viz. in the mediæval enamel on the surfaces to which vitrified colour was not applied : this has been termed by some French writers on the art so practised at Limoges and elsewhere, about the twelfth century, *sous-relief*." [1] The fronts of these handles are more simply ornamented by a circular concentric moulding. One pair found in Ireland, and now in the National Museum, Dublin, are peculiar in the cross

[1] Albert Way in *The Archæological Journal*, XXVI., p. 61, where a detailed account of these "spoons" is given. Figs. 281, 282, and 283 are reproduced from this source with the kind permission of the Roy. Arch. Inst. of Gt. Brit. and Ireld.

lines being of fine zigzag, as is also the line work entering into the ornamentation of the handles. The designs, in this case on the fronts, are curvilinear, the ground being filled in with punched or stipple work in the form of minute circles or dimplings, wholly so in one, partially in the other, where the remaining part consists of fine zigzag lines (Fig. 283). This zigzag line work recalls that on the Warden mirror already described. The discovery on so many sites scattered over so wide an area of these singular, but most characteristic objects, showing fine workmanship, and ornamented with unmistakable late Keltic designs, supports strongly the conclusion that there existed in Britain at this time a school of artificers endowed with artistic taste and skill of a definite and no mean order.

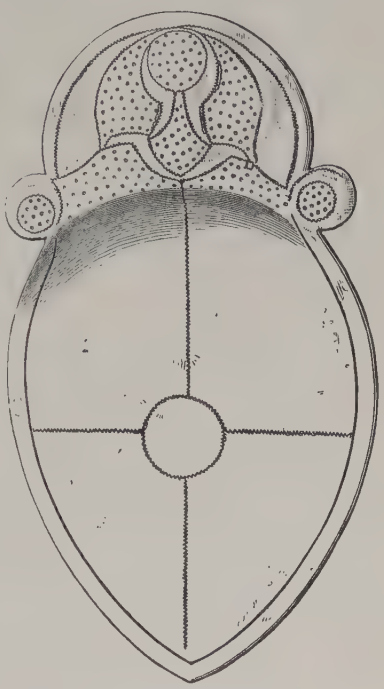


Fig. 283.—"Spoon" from Ireland, with zigzag and stipple work.

4. *CHARIOT BURIALS. HORSE TRAPPINGS.*

Certain barrows of this period in Yorkshire, notably at Arras, contained interments of an unusual nature. The chieftain was buried on his chariot, accompanied by his horse in harness, and sometimes by his charioteer. They were first discovered as long ago as 1817 by the Rev. E.

W. Stillingfleet,[1] and since then by Canon Greenwell[2] and by Mr. Mortimer,[3] in the same county. In one of these, named the *Barrow of the Charioteer*, the skeleton rested on a shield with a bronze boss, 4½ inches in diameter. A chariot wheel and bridle-bit lay on either side. Near the body were two boar tusks, one of which was polished and engraved with a lattice pattern. Another tumulus in the same district is known as the *King's Barrow*. In this the skeleton lay extended on its back with arms crossed, and on either side were the tyre and nave of a wheel with remains of the wood they had enclosed. Near the wheels were the skeletons of two small horses, two bridle-bits, and two lynch pins. A third mound covered another burial containing no evidence of a chariot, but so rich in articles of adornment that it was called the *Queen's Barrow*. These included a large number of blue glass beads with white spots or rings, a red amber ring, two large bracelets set with paste, a small bronze ring, a gold ring chased with a quatrefoil on the bezel, and a pendant with brooch adorned with coral.[4] These chariot burials are all the more interesting because they closely resemble others in North-east France, especially in Marne. Here in fact all the details of the interment are much better preserved. In the Musée Nationale at St. Germain-en-Laye, the chariot burial discovered at *La Gorge Meillet*, Somme Tourbe, Marne, has been reproduced in all its details, with the charioteer interred above his master, as shown in the illustration (Fig. 284). The warrior lies be-

[1] *Proc. Archæological Institute, York*, 1846, p. 26.

[2] *British Barrows*, p. 454. [3] *Forty Years' Researches*, p. 358.

[4] Evidence of other chariot burials has been found at Arras and Beverley (*British Barrows*, p. 454); Danes Graves (*Forty Years' Res.*, p. 359; *Proc. Soc. Ant.*, 2nd Series, XVII., p. 121, Fig. on p. 122); Hampton Hill, Wilts (*Archæologia*, XXI., p. 42, Plate V), and in Moray, Scotland (*Prehistoric Annals of Scotland*, II., p. 153).

tween two iron tyres and bronze axle trees: at his left side are iron spear-heads, and an iron sword, and on his left arm is a gold bracelet: on his right side lay a knife with bronze blade and bone handle, and three vessels, one of which contained bones of animals and egg shells. On his chest were four bronze buttons, and near his mouth a bronze fibula which no doubt fastened his cloak. Near his feet was a pointed helmet, rings, and iron disks. Beyond these were two horse bits, several buttons with heads of coral, two bronze ornaments in the shape of a cross ornamented with coral, and each provided with a fine chain for sus-

FIG. 284.—Chariot burial. La Gorge Meillet (Marne).

pension. Between these objects and the body was a bronze vessel of the shape called by the Greeks œnochoe, which enables the date of the burial to be fixed about the fourth century B.C.[1] (Fig. 285). Another chariot burial, particularly rich in objects of the Early Iron Age, was discovered by M. Leon Morel at *Somme Bionne*, in the same department.[2] The horse trappings found here show beautiful open curvilinear bronze work exemplifying the art of this

[1] *Double Sepulture Gauloise de la Gorge Meillet*, par E. Fourdriguier (1876). For the illustrations (Figs. 284, 285) I am indebted to the author and publisher of *Guide Illustré*, *Musée St. Germain*, M. S. Reinach and MM. Eggimann.

[2] L. Morel, *La Champagne Souterraine* (1875).

period, though the scroll designs are not so marked and characteristic as those of Late Keltic designs in Britain. Among the objects found with this interment was a dish

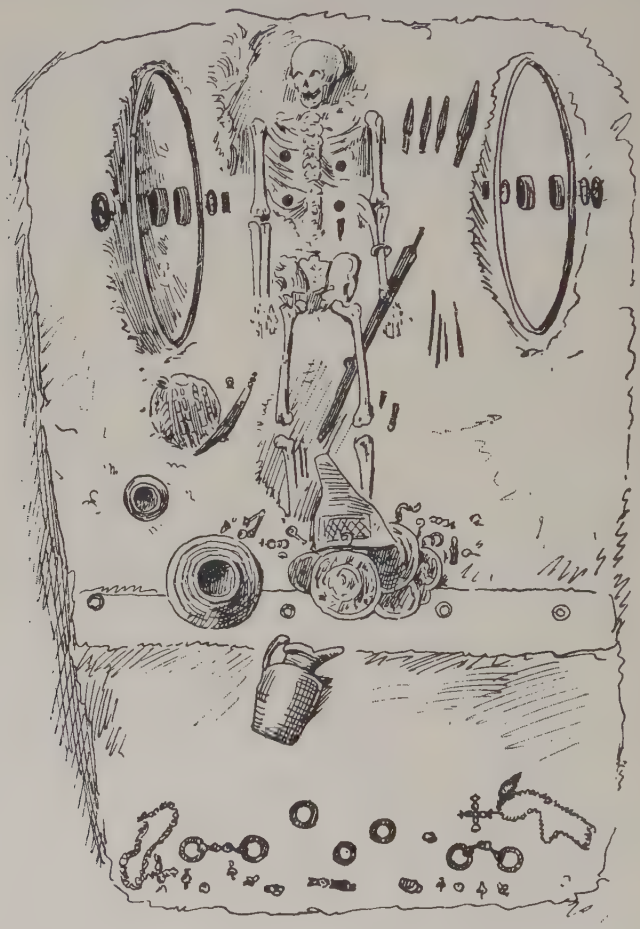


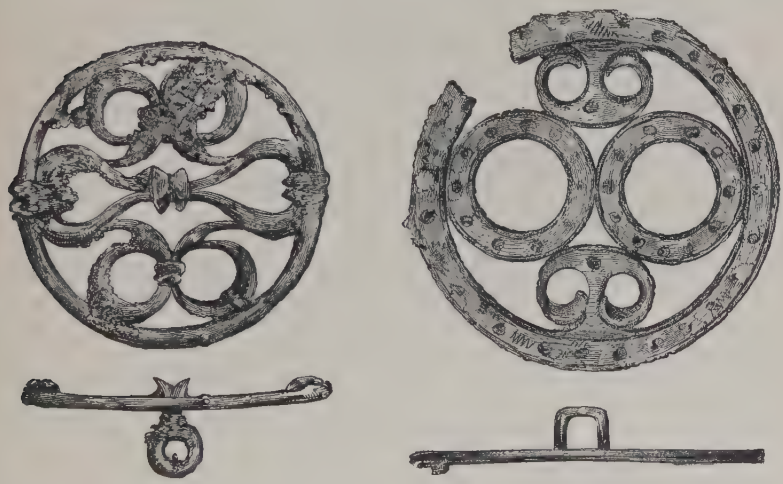
FIG. 285.—Chariot burial. La Gorge Meillet (Marne).

with red figures on a black ground, the Greek kylix, referable to the fifth or fourth century B.C., and thus affording evidence of the date of the burial. The relics of this chariot burial are now preserved in the British Museum.[1]

[1] See *Brit. Mus. Guide—Early Iron Age*, Plates II and III.

Some connexion between these chariot burials and those of Yorkshire is suggested by Arras being a place name in this part of France, and by the presence in Yorkshire in British times of a tribe known as Parisii.

The most important discovery of *Horse Trappings* of this period in Britain was one which at first appeared to have no connexion with this form of burial. It was made at Stanwick, seven miles north of Richmond, in Yorkshire, not far from the River Tees, where no sign of any barrow



Figs. 286, 287.—Bronze rings. Stanwick, Yorkshire.

remained. In a pit a few feet below the surface an extraordinary collection of horse trappings was uncovered. Near by were the tyres of two chariot wheels, pointing to its having been the site of a chariot burial. There were many bronze terrets with the so-called lip design, and harness rings, some of which had been decorated with spots of enamel. Also bronze rings with open curvilinear work forming combinations distinctly Late Keltic, and parts of them recalling the handles of some of the mirrors already described (Figs. 286, 287). Among many other objects was a crude *bronze mask* of embossed work, the lower part

of which shows the characteristic involved circle, though much less finely executed than a similar design in repoussé on a *Bronze Disk* found in Ireland[1] (Fig. 288). Also narrow strips of bronze ornamented with a series of rosettes which may be compared with those on the Balmaclellan mirror.[2] Late Keltic enamelled horse trappings have been discovered in many places in England and Scotland.

Fig. 288.—Bronze disk with Late Keltic design in repoussé. Ireland.

Among the more important finds are those at Polden Hills[3] in Somersetshire, Westhall[4] in Suffolk, Hunsbury Camp,[5] near Northampton, Danes Graves in Yorkshire,[6] where

[1] *Archæological Journal*, xxvi., p. 82.

[2] *Mem. Archæol. Inst. Gt. Brit. and Ir.*, York meeting (1846), p. 10, Plates 2, 3, and 4. *Catalogue of Antiquities, Alnwick Castle*, J. C. Bruce (1875).

[3] *Archæologia*, xiv., p. 90. [4] *Ibid.*, xxxvi., p. 454.

[5] *Associated Architectural Societies*, xviii., p. 53.

[6] Mortimer, *Forty Years' Researches*, p. 357.

the bridle bits were of iron, and at Hagbourne Hill, near Chilton in Berkshire.[1] The top of a terret from the Glastonbury Lake Village is ornamented with a most characteristic scroll design.[2]

5. *BRONZE SHIELDS.*

In the bronze shield the acme of Late Keltic Art may be said to be attained. The artistic reputation of the Early Iron Age in Britain may well abide the judgment which may be passed by the severest critic on the bronze shield taken from the Thames at Battersea in the year 1857, and now preserved in the British Museum.[3] It is about 2 feet 8 inches long with rounded ends and slightly incurved sides. Riveted on the surface are three circular plates on which are seen the raised curvilinear patterns which give this shield its unique artistic character. This ornamentation shows a mastery of design, a firmness and sureness of execution which will bear comparison with similar work of any country, and of any time (Plate XV). "No written description can give any idea of the subtle decorative effect produced by the play of light on the surface of the flamboyant curves as they alternately expand and contract in width, and rise and fall above the surrounding level background; the drawing of the curves is simply exquisite, and their beauty is greatly enhanced by the sharp lines used in all cases to emphasize the highest part of the ridge."[4] The beauty of the design is heightened by small rounded

[1] *Archæologia*, XVI., p. 348.

[2] *Lake Village of Glastonbury*, by Bulleid and Gray (1911), p. 231, Figs. 46E, 206.

[3] *Horæ Ferales*, Plate XV.

[4] Romilly Allen in *Celtic Art in Pagan and Christian Times*, p. 93.

pieces of enamel, each divided into four parts by a swastika shaped piece of bronze, placed symmetrically round the central boss which is similarly adorned.

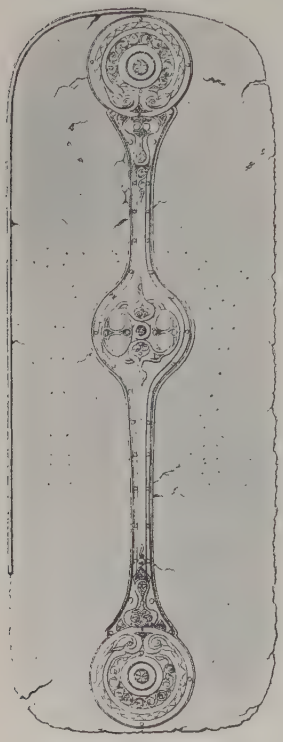


Fig. 289.—Late Keltic shield. Witham, Lincolnshire.

Another shield worthy of note was dredged up from the River *Witham* in Lincolnshire. In shape it is an elongated oval with straight sides (Fig. 289). Very faint dots indicate the rude stylized outline of a boar, and no doubt represents a figure of that animal originally riveted to the shield. This is only another of the many pieces of evidence pointing to the high regard in which the wild boar was held by Keltic peoples.[1] The ornamentation of this shield is confined to the central boss and the extremities. The decoration of the oval-shaped boss consists of C-shaped curves and spirals, and in its centre are three pointed pieces of red coral, with two smaller studs of the same material, one on either side (Fig. 290). From the central boss pass two arms of unequal length terminating in circular enveloped plates richly ornamented, partly by repoussé

[1] Cf. J. Naue, "L'Epoque de Hallstatt en Bavarie," in *Rev. Archæol.*, II, p. 144. "Another interesting detail is the presence in the tombs of skeletons of wild boars. In one great tumulus I found only the skeleton of a very large wild boar interred with vases. We find a perfect explanation of this custom in the wild boar being a sacred animal amongst the Kelts. Remains of other animals are rare." Three bronze models of boars were found at Hounslow in Middlesex. See *Brit. Mus. Guide—Early Iron Age*, Fig. 123.

Details of design on Late Keltic Bronze Shield from the Thames.
(From Romilly Allen's *Celtic Art.*)

work, and partly with engraving (Fig. 291). The latter is an excellent example of typical Late Keltic scroll work.[1]

Repoussé work is seen on a more elaborate scale on two shield bosses recovered from the Thames at Wandsworth. One consists of the central shield plate, 13 inches

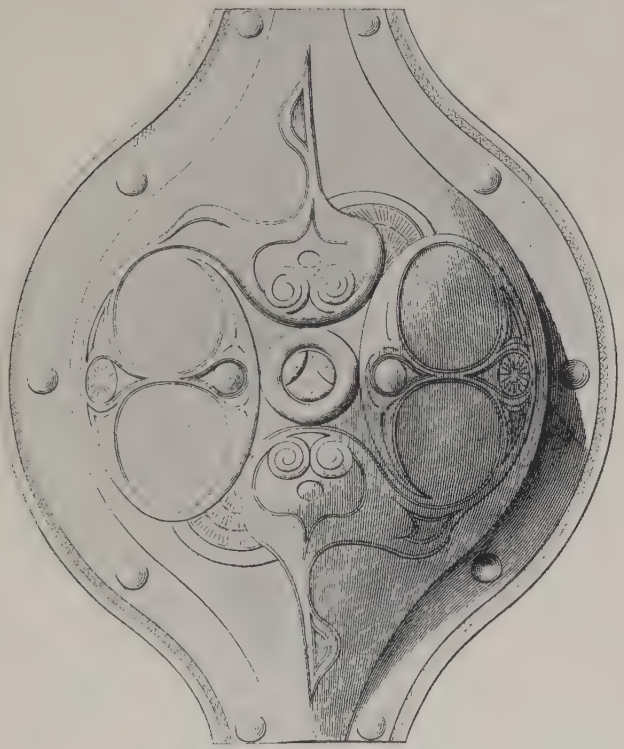


Fig. 290.—Umbo of the Witham shield.

in diameter, from the middle of which rises the actual circular boss which is engraved. The plate bears an embossed design of involved circles, and trumpet ending curves. The wider parts of this design are engraved with

[1] *Horæ Ferales*, Plate XIV; *Archæologia*, xxiii., p. 96, Plate XIII. For permission to reproduce Figs. 289, 290, 291, I have to thank the Society of Antiquaries.

a curvilinear pattern. The embossed design is composed in fact of one repeated, and each of the two similar parts containing a crude representation of a bird's head, evidently a degraded zoomorphic design. The other shield boss is oval-shaped with a curvilinear pattern in high relief. This pattern is composed of two similar sets of curves connected in the middle. The artist has taken the opportunity of enriching the design by waving the central joining ridge.

FIG. 291.—One of the circular plates of the Witham shield.

Each half of the design terminates in a pointed pear-like enlargement, the surface of which is ornamented with finely engraved continuous spirals. Fine curvilinear engraving is also found on one of the arms which ends in a double embossed spiral suggestive of an animal's head. The study of the designs on these shields suggests that among the origins of Late Keltic designs the zoomorphic must be included. Further, it can hardly fail to impress upon the least observant how thoroughly characteristic, individual-

istic, and original was the genius of the Late Keltic artist. These shield bosses well illustrate the way in which the artist revelled in curvilinear decoration. Not content with the elaborate curvilinear embossed design, he proceeds to cover available portions of this with similar engraved designs, such as scrolls and detached or continuous spirals.[1]

6. *TORQUES.*

A spirally twisted piece of gold was worn round the neck as an ornament by the ancient Persians and other Asiatic peoples. Such an ornament, or torque, does not appear to have been worn by the Egyptians or Greeks.[2] Torques were worn by the Scythians, and they have been recovered from graves at Koban, in the Caucasus, of Early Iron Age date.[3] When the Keltic tribes of Central and Western Europe were first encountered by the Romans, the torque was so generally worn by them that it came to be regarded as quite their characteristic ornament. The gold torques taken from conquered Gauls and other Keltic opponents formed an important item of the spoil, and they were bestowed as rewards and honours on soldiers who had distinguished themselves in the contest. This is strikingly exemplified by the well-known instance of Titus Manlius, so graphically described by Livy,[4] who in the year 361 B.C. took from the body of a Gaulish

[1] *Horæ Ferales*, Plate XVI.

[2] Cf. S. Birch in *Archæological Journal*, II., p. 388 ; III., p. 77 ; and *Archæologia*, LIV., p. 495.

[3] E. Chantre, "Le Caucase," II., 56, Plate XIV (Atlas). "It is remarkable to find on this the most Eastern Hallstattian site torques which are so common on the Rhine, Switzerland, and the Jura, but absent almost completely on all other Hallstattian sites, notably in Italy."

[4] VII., p. 10.

chieftain whom he had slain his torque, and putting it round his own neck was henceforth known as Torquatus.

The Keltic word is *Torc*, found in both Welsh and Irish literature applied to similar ornaments. "One continuous stream of history and art shows that this singular decoration had essentially the same form from the fourth century B.C. down to the tenth century A.D. The true difficulty is the determination of the relative antiquity of the different forms, a task at present (1846), owing to the total want of sufficiently accurate notices of finds, all but impossible."[1] Many finds have been made since these words were penned by Birch, but the difficulty still exists.

FIG. 292.—Gold torque with Late Keltic ornament. Clevedon.

In the earlier forms the ends of the Torque were not joined, but remained some distance apart, or terminated in bulbs or knobs which fitted against one another. These terminal enlargements gave a surface which could be ornamented. This is well exemplified in a gold torque from Clevedon, Somerset, the enlarged ends of which have scroll designs both on their sides and flat terminal surfaces[2] (Fig. 292). Later the two ends were hooked; enabling the torque to be firmly closed. At first the simple twisted surface was itself the sole ornament, but when this was replaced by a tubular or rectangular piece of metal, or by a series of beads, sur-

[1] S. Birch, *Archæological Journal*, II., p. 378.
[2] *Brit. Mus. Guide—Early Iron Age*, Fig. 126.

faces were available for ornament, of which the Late Keltic artist was not slow to avail himself. Most of the gold torques found in the British Isles are referable to the Bronze Age: they are for the most part destitute of ornament. There are two, however, which are highly decorated, and the character of their ornamentation is such that there can be no doubt of their Late Keltic origin. Both specimens are from Ireland, and one of them was among a number of gold objects forming one of the most valuable finds of the kind ever revealed in this country. This hoard of gold, probably a votive offering, was discovered at Broighter, near Lough Foyle in County Londonderry. It was turned up by the plough, and contained a small boat with oars, a bowl, and two beautifully worked chains, two twisted neck rings, and a hollow *Torque*, with repoussé work designs, which has been alluded to by Sir A. J. Evans as "beyond question the most magnificent object of its kind ever discovered".[1] It is hollow, though no doubt originally filled with some hard material. It measures $7\frac{1}{2}$ inches in diameter, and the tube is $1\frac{1}{8}$ inch bore. It is composed of two thin gold plates soldered together. The two halves are ornamented, each with exactly the same design. It is the beauty and skill this ornamentation displays that gives the torque its unique character. The repoussé design consists of bold but elegant curves contracting in the middle and expanding at each end into trumpet-shaped terminals, with which are connected curved expansions resembling helix shells. Connected together these curves form a continuous curvilinear pattern (Fig. 293). "The relief work," says Sir A. J. Evans, "is executed in a bold and brilliant style which marks it out as belonging to the most flourishing period of Late Keltic work," and he thinks

[1] *Archæologia*, LV., p. 401, Fig. 7, and Plate XXI, and cf. *Jo. Roy. Soc. Antiq. Ireland*, XXIII., p. 211. The objects are now in the National Museum, Dublin.

Fig. 293.—Detail of the ornamentation of the Broighter torque.

it probably dates from the first century A.D. It must not be forgotten that Late Keltic Art flourished and excelled in distant parts of the British Isles for some time after the arrival of the Romans, and even after the Roman dominion was established in Southern Britain, in parts that is exempt from its influence and, therefore, truly still in a prehistoric age. But another interesting phase of its decoration has yet to be mentioned. The spaces between the various parts of the repoussé design are not left blank, nor are they filled in with hatch-work or basket-work shading. These spaces are completely filled with engraved lines, but they consist of series of parts of perfect circles arranged concentrically. In fact, no such regular series of curved lines could be produced without the aid of compasses, and, no doubt, this part of the decoration was thus accomplished. This "compass work," as it has been called, is seen in other examples of Late Keltic ornament, but the accuracy and completeness with which it is here carried out are probably unequalled.[1]

About a dozen bronze and several iron torques of this period are known. Of the former illustrating Late Keltic ornament may be mentioned the following. One from Wraxall, in Somerset, discovered in 1839, only a foot beneath the surface, consists of two parts perhaps originally hinged together. Somewhat flattened laterally it is ornamented with a charming curvilinear design which encloses a number of small cavities probably filled originally with coral or enamel.[2] There is said to be no tin in the alloy of which this collar is made, but zinc. It is really therefore composed of brass and not of bronze.[3] In a streamwork at Trenoweth in Cornwall, as far back as 1802, a torque was found, but unfortunately broken into three pieces.

[1] *Archæologia*, LV., pp. 391-408.

[2] *Ibid.*, LIV., p. 494, Plate 48.

[3] *Ibid.*, XXX., p. 521.

The curvilinear ornamentation is restricted to four parts covering less than half the surface. There are cavities like those on the Wraxall specimen. Around the edge is a chevron design filled in with small dots.[1] Whilst cutting turf on Lochar Moss in Dumfriesshire, a labourer came upon a bronze torque of a more complicated design than those just described (Fig. 294). One half of it is beaded, the

Fig. 294.—Bronze torque. Lochar Moss, Dumfries, Scotland. (Diam. 6½ in.)

other is rectangular in section. The beads, fourteen in number, each measures about an inch in diameter, and are ribbed and grooved horizontally. Between every two beads is a small flat one shaped like the wheel of a pulley. They were apparently strung on a metal wire. The rectangular portion which no doubt lay on the back of the neck is

[1] *Archæologia*, xvi., p. 137, Plate X.

smooth on the inside, but on its upper surface there is a characteristic graceful scroll design. On the outer surface are engraved waved lines in imitation, it has been suggested, of a cord, a reminiscence of the "string with

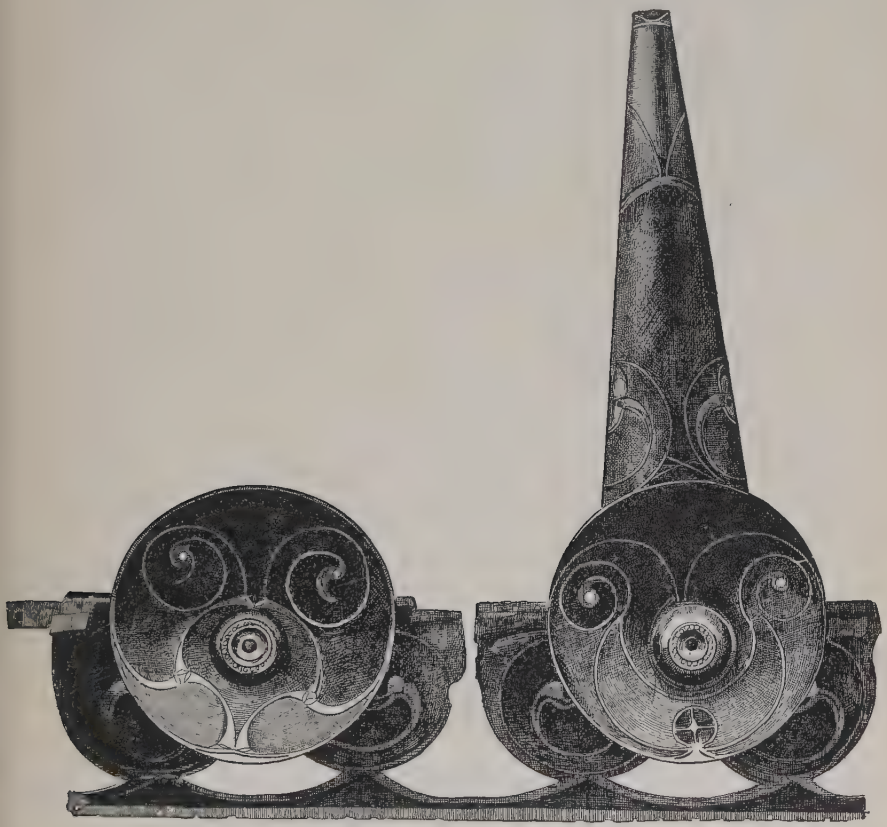


FIG. 295.—Part of a bronze diadem.

which the older necklace of shale or jet was secured".[1] Of *Iron Torques* the most singular specimen was in the find at Polden Hills, Somerset. It is made of an iron ring round which are twisted five pieces of bronze wire.[2] Several

[1] Wilson, *Prehistoric Annals of Scotland*, I., p. 141, Plate IX.
[2] *Archæologia*, XIV., p. 93, Plate XIX, Fig. 6.

other iron torques have been found, notably one on the neck of a skeleton at Arras in Yorkshire, but it has no artistic interest.

A Bronze Diadem.—Two bronze fragments, the use of which is not apparent and whose source is unknown, now in the National Museum at Dublin, have attracted attention on account of their workmanship, and the designs with which they are ornamented. They were noticed and highly praised by J. M. Kemble fifty years ago. The more complete of the two pieces consists of three parts, a fillet or band of bronze, slightly curved, $1\frac{3}{4}$ inches high, a circular plate attached behind to the fillet from which springs up a cone or tongue, $4\frac{1}{2}$ inches high and $3\frac{1}{2}$ in circumference at the base (Fig. 295). They are all ornamented with elegant Late Keltic divergent spirals or trumpet pattern. In the centre of the circular plate is a spot of red enamel. The spiral designs are in relief, but do not appear to have been cast, but were stamped and then finished by hand. Miss M. Stokes, who drew special attention to the high artistic level reached in the design, workmanship, and ornament of this remarkable relic, made the ingenious suggestion that it was part of a bronze diadem or crown, the cone being one of a series arranged in a circle.[1]

7. *ENAMEL.*

Enamelling as a mode of decorating metal work raises one of the most interesting and curious subjects connected with the art of Ancient Britain, for there is reason to believe that if not an indigenous art it reached there a higher development and a greater excellence than anywhere else in Western Europe before the Christian era.

[1] *Archæologia*, XLVII., p. 474, Plate XXI, Fig. 1.

Where enamel originated or was first used is still an unsolved problem. Virchow discovered an enamelled plate, apparently part of a girdle in an Early Iron Age grave at Koban in the Caucasus,[1] and several articles ornamented with enamel were among the extraordinary collections of splendid jewellery found in Scythian and Greek tombs in Southern Russia on the northern side of the Black Sea, dating for the most part from the fourth and third centuries before Christ.[2] But these discoveries throw little light on the enamel of the Late Keltic Period in Britain, for at present no connexion of this Eastern site with Western Europe has been shown, unless a few doubtful or insignificant finds in Hungary and Bohemia can be considered as such.[3]

True enamelling, well described as both a science and an art, and not to be confounded with glass or glazing, does not appear to have been known to the Ancient Egyptians ; the supposed examples of enamel from Egypt being in reality stone or glass. It has also been said that the art was not practised by the Greeks. If the state-

[1] *Das Gräberfeld von Koban*, p. 71, Album, Plate III, Fig. 10.

[2] *Antiquités de la Russie Meridionale*, par N. Kondakof, J. Tolstoi, and S. Reinach (1891); *Antiq. du Bosphore Cimmerien*, par S. Reinach (1892) in his *Bibliothèque des Monuments Figurés*; *Scythians and Greeks*, by E. H. Minns (1913). In these works will be found a full description with illustrations of the enamalled objects.

[3] E. Garnier, *Histoire de la Verrerie et de l'Emaillerie* (1886) ; J. L. Pic, *Le Hradischt de Stradonitz en Bohême*, translated by J. Déchelette (1906). The enamelled objects found here are heads of pins, ¼ to 1 inch diameter, incised or hatched to receive the red enamel. The only exception is a pendant (1½ inch long) with an enamelled design in red, white, and blue. It seems doubtful, however, if it really came from this site. Plates IX, XIII, Fig. 33. A possible explanation may be that the secret of enamelling was brought back to the west by some member or members of a Keltic tribe which penetrated as far as Scythia, and then returned directly to their western home.

ment is restricted to the inhabitants of the mainland of Greece, there seems to be some ground for it, and the enamelling of Greek jewellery generally is of a restricted character.[1] Very few specimens of enamel have been found in Greece. The Greek jewellery ornamented with enamel comes from islands of the Eastern Mediterranean, like Melos, Rhodes, and Cyprus, from Etruria and Southern Russia.[2] It looks as though it was only when the Greek jewel worker was brought under foreign influence as in Etruria, Cyprus, and Scythia, that he embellished his beautiful jewellery work with enamel. Moreover, the only region in which any considerable number of specimens of Greek enamel work occurs is in Southern Russia, north of the Black Sea, or in the Scythia of Herodotus. It appears probable therefore that it was from the Scythians the Greek craftsmen learnt the art, and that the comparatively few scattered examples found in the islands and Italy may be regarded as the result of commerce or of the migrations of the jewel worker. That the art of enamelling was not seriously practised either in Greece or Etruria seems to follow from the absence of enamel in Greece itself and from Greek jewellery generally after the

[1] Cf. A. W. Franks, *Glass and Enamel*, and J. Labarte, *L'Emaillerie dans l'Antiquité*. The remarks of Sir A. W. Franks, made forty years ago, seem still applicable: "The Greeks appear to have had some slight knowledge of enamelling, for the exquisite gold necklaces which have been principally found in tombs in Melos are ornamented with minute flowers, the petals of which contain a vitreous substance. It was probably fused with the blowpipe and at a low temperature. Such trifling productions can scarcely be called enamel" (*Glass and Enamel*, p. 13).

[2] Cf. *British Museum Catalogue of Greek, Etruscan, and Roman Jewellery*, by F. H. Marshall (1911). Of the sixty-eight specimens of jewellery ornamented with enamel, in the large collection of the British Museum, only one is with certainty ascribed to a mainland Greek site. It is noteworthy how few objects definitely Roman are ornamented with enamel. Cf. H. B. Walters, *Brit. Mus. Catalogue of Bronze* (1899).

third century B.C., and from the fact that the Romans were unacquainted with it, until some time after the beginning of the Christian era. These conclusions are supported by an oft-quoted passage from Philostratus. This Greek sophist came to Rome from Athens in the early part of the third century A.D., and would therefore be in a position to know whether enamelling had been practised by either Greeks or Romans. The passage referred to, taken in conjunction with the context, certainly suggests that, within his experience or knowledge, it had not been. In his *Icones*, when describing the picture of a boar hunt, and referring to the variegated trappings of the horses, Philostratus remarks: "They say that the barbarians living in the ocean pour their colours on the heated bronze, they adhere to it, and becoming as hard as stone preserve the designs".[1] It has been a matter of controversy whether the barbarians referred to were Gauls or Britons, for the art of enamelling was undoubtedly known and practised in both Gaul and Britain before the Christian era. In Britain it was, in fact, very generally employed for decorating horse trappings, as we have already incidentally seen.

At Mont Beuvray, fifteen miles from Autun, the site of the ancient Æduan fortress of Bibracte, destroyed before the Christian era, excavations have revealed the former existence of workshops equipped with all the necessary apparatus and tools for bronze working and enamelling. The enamelled objects found here were numerous but fragmentary; there were no signs of Roman influence, but many Gaulish coins. An interesting discovery was of actual pieces of enamel.[2] A few enamelled objects have

[1] Lib. v. 37. Cf. E. de Laborde, *Emaux du Musée du Louvre*, I., 23, and Albert Way in *Archæological Journal*, II., 155.

[2] J. G. Bulliot, *Fouilles de Mont Beuvray* (1899). A few words here may perhaps not be inappropriate regarding the nature of enamel

been discovered in other parts of France.[1] If the enamels of Mont Beuvray were independent of foreign influence, *à fortiori* would be those produced in Britain during the same period. Moreover, from the sites and associations in which they have been found, and also from the character of their designs, there can be little hesitation in referring certain British enamels to the Early Iron Age, and claiming them as another example of the remarkable development of Late Keltic Art. In fact, the excellence of some of the British enamelling is such that we can hardly wonder at its being spoken of as a peculiarly British art, one authority going so far as to say that the Bibracte enamellers were mere dabblers in it compared with those of Britain.[2]

The process employed was that known as *champlevé*, that is to say the portion of the metallic surface on which the enamel is to be laid is dug out forming a sunken bed on which it will lie. The different parts of the enamelled

and the method of its application. The foundation of enamel is a flux composed of silica, lead, and an alkali. The desired colour is obtained by the addition of the oxide of a metal as for example copper, and opacity is produced by adding oxide of tin. This material, reduced to a fine powder and mixed with a little water, is applied by means of a brush or other instrument to those portions of the metallic surface which have been worked to receive it. In the case of champlevé enamel in the spaces grooved out of the metal, in cloisonné enamel in the divided off spaces or *cloisonnage*. The object is now exposed to a strong heat, the enamel melts, and on cooling becomes firmly adherent to the metallic surface on which it rests. The surface of the enamel is then polished. The pieces of enamel discovered at Beuvray on analysis were found to have the following percentage composition: Silica, 42; oxide of lead, 14; cuprous oxide, 7; ferrous oxide, 3; aluminium, 20; lime, 8; soda, 6.

[1] *Revue Archéologique* (1877), II., p. 44; *Revue Celtique* (1899), XX., p. 129 *n.*

[2] J. Anderson, *Proc. Soc. Antiq. Scotland*, XIX., p. 45.

design are thus separated by bands of metal consisting of the actual surface of the decorated object. It thus differs from the *cloisonné* process in which the enamel is separated by bands of metal attached to the surface of the bed. Another method, rather inaccurately termed champlevé, consists in working up the metal surface about to receive the enamel with deep convergent, parallel, or hatched lines: most of the Mont Beuvray enamels are of this nature.

Reference has already been incidentally made to the presence of enamel on sword sheaths, shields, mirrors, and horse trappings, but attention may now be directed to a few other examples in which it is more strikingly exhibited. Enamel was chiefly employed in Britain to decorate horse furniture. Some of these, in the form of plates, afforded the artist excellent opportunity for the display of his skill. Among the many bronze objects in the rich hoard at Polden Hills, Somerset, several were enamelled. The best examples are harness mountings in the form of three *bronze plates*. One of these by its curved shape suggests the Late Keltic artist (Plate XVI [1]). On its surface is a characteristic most graceful design of narrowing and enlarging curves with terminal and enclosed volutes. The design is in red enamel and the metallic surface was blackened, thus throwing up the coloured pattern more effectively. On another of these plates the bronze is of a bright golden colour contrasting with the red enamelled curvilinear pattern.[2]

At Westhall, 3 miles north-east of Halesworth in Suffolk, in a bronze bowl, covered with an ornamental bronze plate, 2 feet below the surface were discovered *two enamelled plates* and *eight enamelled rings*. The *plates* are

[1] For permission to copy Figs. 1, 2, and 3, I am indebted to the British Museum.

[2] *Horæ Ferales*, Plates XIX, Fig. 3, and XX, Fig. 1; *Archæologia*, XIV., p. 90.

ornamented with circles of white, blue, and green, and leaf-shaped compartments of red enamel. The lower parts of the bronze *rings*, probably terrets, are opened out in the form of plates, on which, in the larger ones, the metal surfaces between the red enamel forms a most graceful scroll design (Plate XVI, 1, 4). The smaller rings are ornamented with a similar design on a reduced scale.[1] Similar enamelled rings come from Bapchild, near Sittingbourne in Kent,[2] and from Runnymede on the Thames. A bronze plate from Norton in Suffolk is decorated with circles of bright opaque yellow enamel, and with patterns in red. The middle of the plate is pierced with four openings.[3] A plate ornamented much in the same way was found in London.[4] *Bridle Bits* seem to have had a particular attraction for the early British enameller. Numbers of them have come to light still showing the enamel ornament, or a champlevé design ready to receive it, or from which it has been worn off. Those still with the enamel are illustrated by specimens from Polden Hills,[5] Stanwick,[5] and Rice near Hull. The last named is prettily decorated with circles and squares filled with a blue quatrefoil on a red ground.[6] Also in a very fine example of metal work dug out of a moss at Birrenswork Hill, Dumfriesshire. It shows great skill for it is a single casting in bronze, and is "designed as carefully as a piece of jewellery" (Fig. 296). Within the cheek rings is an oblong plate enamelled in red and yellow in triangular and oval spaces. On one side, the bit on entering the cheek ring at once ends in this plate on the other a second plate intervenes, extending right

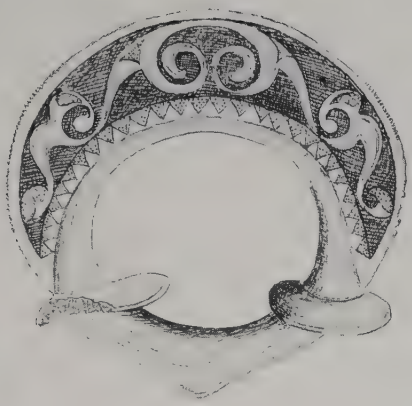
[1] *Horæ Ferales*, p. 196, Plate XX, Fig. 4. *Archæologia*, XXXVI., p. 454, Plate XXXVIII, Figs. 1, 2, 3, 4.

[2] *Jo. Brit. Archæol. Assoc.*, XVI., p. 269, Plate XXII.

[3] *Horæ Ferales*, p. 195, Plate XIX, Fig. 4.

[4] *Ibid.*, Fig. 12. [5] *Op. cit.*

[6] *Brit. Mus. Guide—Early Iron Age*, Plate V, Fig. 4.



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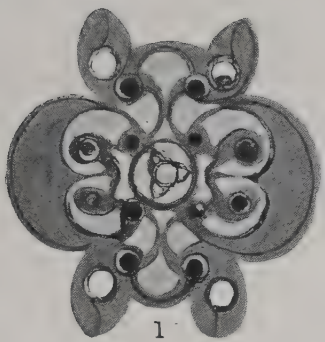

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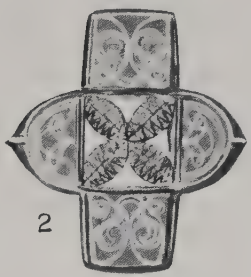

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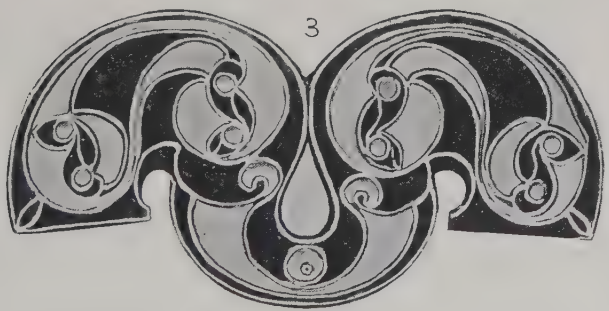


3

Late Keltic Enamels.
1 and 4, Westhall; 2, Unknown; 3, Polden Hills.
1 and 2, red, blue and yellow; 3 and 4, red.
(Figs. 1, 2, 3 from *British Museum Guide to Early Iron Age;*
Fig. 4 after *Horae Ferales.*)

across the ring to which it is attached on either side. This second plate is composed of three parts, a central one ornamented with a curvilinear design, and two lateral with oval spaces.[1] An example of the champlevé design without enamel is a bridle bit, discovered in London. It has oblong plates within the cheek rings very much like the last specimen.

Scotland supplies a number of penannular *Armlets* with rounded slightly expanded ends. While the body shows a striking repoussé curvilinear ornamentation, the enlarged terminals are decorated in the centre with enamel, either in chequer as in the specimen from Castle Neave, Aberdeenshire, or in a cruciform quatrefoil design as in that from Pitkelloney, Drummond Castle, Perthshire (Fig. 297). The colours are red and yellow.[2]

In treating of Late Keltic enamel in Britain it is im-

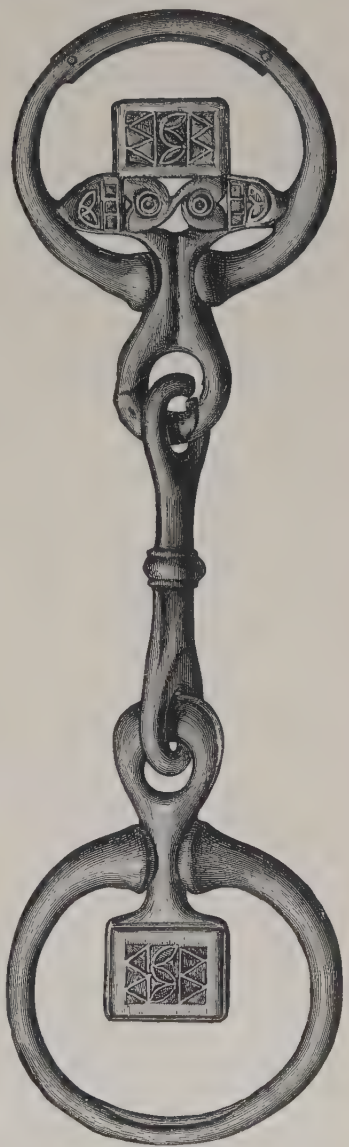


Fig. 296.—Bridle bit, enamelled. Birrenswork Hill, Dumfries, Scotland.

[1] Wilson, *Prehistoric Annals of Scotland*, 1st edition, p. 458.

[2] J. Anderson, *op. cit.*, where the remarkable series of Armlets from Scotland are fully described, Figs. 118, etc. Figs. 296, 297 are from Dr. Anderson's work.

possible to omit mentioning some very beautiful examples of enamelling which date from the early period of the Roman occupation, for there can be little doubt of their being the work of Late Keltic craftsmen. This especially applies to a *Bronze Cup or Patera* $4\frac{1}{2}$ inches wide, and $2\frac{1}{2}$ inches deep, from Linlithgowshire, the exact locality in the county being unknown. The whole of its outer surface, except a hollow moulding near the rim, and the upper surface of the handle are enamelled. The decoration is a beautiful example of champlevé work. It takes the form of a series of five bands, from above downwards, as follows:—

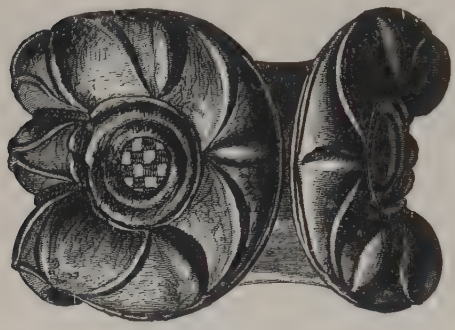


Fig. 297.—Enamelled armlet. Pitkelloney, Perthshire.

1. Blue enamel ground with a stem and leaf pattern in metal. 2. A narrow red band with three horizontal lines in metal. 3. A wider band of blue enamel with a scroll design in metal bearing at intervals green leaf-like designs. 4. A repetition of (2). 5. Vandykes in blue, green, and yellow.

The pattern on the handle is composed of a leaf and scroll design in red, green, and yellow on a blue ground within a yellow border. "Apart from the singular beauty of its decoration, it is possessed of this special interest that it is the only vessel of its kind and character known in Scotland. It is, however, one of a class of objects which, though few in numbers, are pretty widely distributed over the area which may be termed the outskirts of the Roman Empire towards the north and west, i.e. Britain, North Germany, and Scandinavia. We look in vain for anything

like it within the area of the Empire proper, and it may therefore be regarded as the product of the culture of some portion of the area of north-west Europe where it was touched and modified by Roman culture."[1]

Foreign influence may be invoked with more force for the enamelled designs decorating a spherical bronze vessel, with a rectangular handle, $4\frac{3}{4}$ inches wide and $3\frac{3}{4}$ inches high, discovered when Lord Maynard in 1835 excavated the largest of the tumuli at Bartlow in Essex. The whole surface except for a hollow moulding at the top and bottom is enamelled in green, red, and blue. The decoration takes the form of bands of which there are five as in the Linlithgow cup. The highest and lowest bands consist of vandykes, alternately green, red, and blue. Next each of these is a wide band of dark blue on which is a garland of green leaves borne on a red undulating stem. These are separated by a narrow green band bearing a stem leaf design in yellow.[2] On examining the designs on this beautifully decorated vessel we notice all absence of the Late Keltic scroll seen on the Linlithgow specimen. We are here in closer touch with Roman influence for the objects found with it point to the time of Hadrian as its date.[3] It is not uninteresting to note that almost identical designs of an undulating stem bearing leaves are very common elements in Etruscan ornamentation, as for example on mirrors.[4]

[1] J. Anderson, *Proc. Soc. Antiq. Scotland*, XIX., p. 46, Plate I. Of four others two were discovered in England, one in Denmark and another at Pyrmont in the Rhine Valley.

[2] *Archæologia*, XXVI., p. 300, Plate XXXII. J. Labarte, *L'Emaillerie dans l'Antiquité*, Plate B, a full-size illustration. "C'était la certainement le plus beau specimen connu de l'émaillerie gauloise".

[3] A.D. 117-38. A coin of Hadrian was found in another of these tumuli and many Roman objects with the vessel.

[4] Cf. Gerhard, *Etruskische Spiegel*, Plates 134, 289, 324, and others.

A small cup enamelled in much the same way from Braughing, in Hertfordshire, was described by Sir A. W. Franks in 1870. The general pattern of its decoration in blue and green enamel resembles closely that of the Bartlow vessel, though it is less elaborate, there being only three bands, viz. an upper with the stem and leaf pattern, a broader middle band with a ribbon and foliate design in green on a blue ground, and a lower one of vandykes in blue and green.[1] Sir A. W. Franks acutely observed on these vessels a peculiarity not seen on any others of the same kind, viz. that the boundary lines of the bands are frequently indented with a series of slight notches, probably to help retain the enamel, and he thought it pointed to their all coining from the same manufactory. This rather lends support to the view entertained by M. E. Garnier[2] that they were the work of one or more gifted nomadic Keltic craftsmen who have left evidence of their extensive travels in the wide area over which their beautiful work has been found.

Another example of somewhat detailed enamelling where it is possible to see Roman influence is a *bronze sword sheath* from Embleton, near Cockermouth, in Cumberland, and now in the British Museum. This sheath is made of thin plates of metal with bindings at the sides connected across by bands. The surface is thus divided into four parts. Two of these are filled with chequer work, the other two had open work upon them, now mostly lost. Each of the four cross bands is ornamented with a row of small squares of enamel, alternately red and green. The sword handle is ornamented in the same way along the edge of the pommel, on the central ring and just above the blade.[3] An S-shaped and two harp-shaped

[1] *Proc. Soc. Antiq. London*, 2nd Series, IV., p. 314 and illustration.

[2] *Hist. de la Verrerie et l'Émaillerie* (1886).

[3] *Horæ Ferales*, Plate XVIII, Fig. 3; *Archæologia*, XLV., p. 252; C. Roach Smith, *Collectanea Antiqua*, IV., Plates 33 and 34.

enamelled fibulæ were found in a hoard at Lamberton Moor, Berwickshire. Though dating from the second century A.D., there can be no doubt they are the work of Keltic artists.[1] During the excavation of the Victoria Cave near Settle several enamelled fibulæ were found. Though probably dating from the time of the Roman occupation, these also betray the late Keltic artist.[2]

8. *CORAL.*

Coral was not used apparently for decorative purposes by the Greeks or Etruscans, nor more anciently in Egypt, Babylonia, and Persia. It is in Southern Russia, Central Europe, Northern Italy, Gaul, and Britain that coral is found ornamenting objects of metal in the Early Iron Age. Its source was no doubt the northern shore of the Mediterranean as actually described by Pliny.[3] From the Mediterranean it was traded up the Rhone valley, and thus reached those districts of Gaul where it has been discovered ornamenting bronze. Strangely enough its discovery in this connexion has been made only in certain restricted parts. It is common only in Champagne, the country of the Remi, and especially in the department of Marne.[4] This may possibly be the result of this region having been so much more thoroughly explored than any other, due partly to Napoleon III making Chalons so often his headquarters. Coral was among the many interesting relics recovered from the chariot burials of La Gorge Meillet and Somme Bionne in this district. As we have seen there is good ground for referring these burials to the fourth

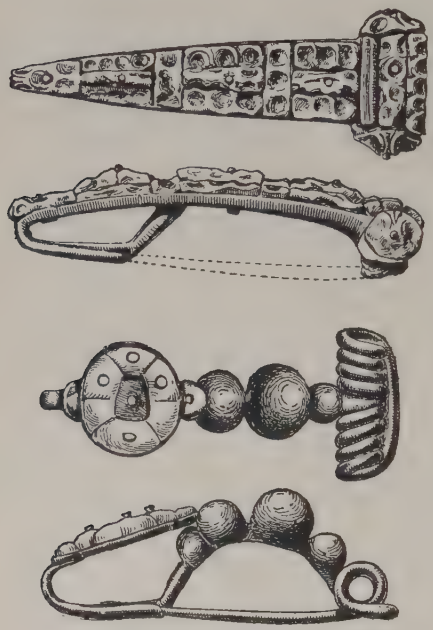
[1] *Proc. Soc. Antiq.*, 2nd Series, XXII., p. 56.

[2] Boyd Dawkins, *Cave Hunting*, p 98, Plate, Fig. 307.

[3] *Nat. Hist.*, XXXII., 21.

[4] Cf. "Corail dans l'Industrie Celtique," par S. Reinach, *Revue Celtique*, XXII. (1899), pp. 13 and 118.

century before the Christian Era. In M. S. Reinach's opinion, coral fell into disuse in Gaul about 300 B.C., for whilst found associated with amber and glass beads, coins have never been discovered with it.[1] This disuse may well have been the result of its growing scarcity due to its increasing export to India where it was highly prized.[2] It was doubtless superseded by enamel then coming into use.



FIGS. 298, 299.—Bronze fibulæ ornamented with coral. Pleurs-Marne.

From Gaul coral found its way into Britain where it was also employed for ornamentation in the Early Iron Age. The *Witham Shield* as we have seen, was decorated with coral fixed by rivets. A bronze cup $3\frac{5}{8}$ inch in diameter from a Late Celtic burial at Colchester has its handle ornamented at the point with a piece of coral.[3] It was also used to decorate sword sheaths as those from Bugthorpe and Grimthorpe in the East Riding of York-

[1] Reinach, *loc. cit.*

[2] Pliny says (Bk. XXXII, chap. II.): Before it was known in what estimation coral was held by the people of India, the Gauls were in the habit of adorning their swords, shields, and helmets with it; but at the present day owing to the value set upon it as an article of exportation it has become so extremely rare that it is seldom to be seen even in regions that produce it.

[3] *Proc. Soc. Antiq.*, 2nd Series, XX., p. 214.

shire.[1] The torques from Wraxall and Trenoweth, previously described, were probably ornamented with coral. Among the articles of adornment from the Queen's barrow at Arras was a pendant composed of a circular bronze plate decorated with three concentric rings of coral, and a brooch adorned with the same material. The rarity of coral in Britain at this time is only what might be expected, if it was falling into disuse in Gaul about 300 B.C., its place being taken by enamel which, as we have seen, is much more commonly found. Whereas the brooch just mentioned is the only one yet discovered in this country with coral ornament (except perhaps one from Avebury), in Gaul the fibula is not an uncommon article on which it is seen (Figs. 298, 299). Amber and glass beads frequently found ornamenting *Fibulæ* of this period on the Continent, have rarely been found used in this way in Britain. A fibula from the Thames at Datchet ornamented with amber and blue beads is a rare exception.[2]

[1] *Proc. Soc. Antiq.*, 2nd Series, I., p. 263.
[2] *Ibid.*, 1st Series, XV., p. 191.

CHAPTER XII.

FIBULÆ.

The fibula or brooch affords an interesting study in relation to the culture and art of the Early Iron Age. The many varied forms it assumes can, with a good deal of confidence, be referred to different periods, and they thus present a chronological series. In this way they become of much service in determining the age of objects associated with them. In other words, fibulæ are to the archæologist what coins are to the historian, or fossils to the palæontologist.

The fibula in its simplest form is comparable to the modern safety-pin. Its origin from a plain pin is easily understood. Such a pin being doubled upon itself, a complete turn forms the spring at one end, whilst at the other the blunt end turned up acts as the catch for the point, and the safety-pin is an accomplished fact. The earliest Italian brooches are hardly distinguishable from such a safety-pin, e.g. those from the Lake Dwelling Settlement of *Peschiera* on Lake Garda, and from the Terramare of the Valley of the Po (Fig. 300 (4)). The fibula was in use therefore in Northern Italy during the latter part of the Bronze Age. For this reason, and on the further grounds that the older fibulæ occur in much greater numbers and variety in Italy than elsewhere, and that the fibula did not reach the Ægean before the close of the Bronze Age (in fact its appearance in the Eastern Mediterranean coincides

with that of iron), it is highly probable that the brooch originated in Northern Italy.[1] Its later arrival in Greece

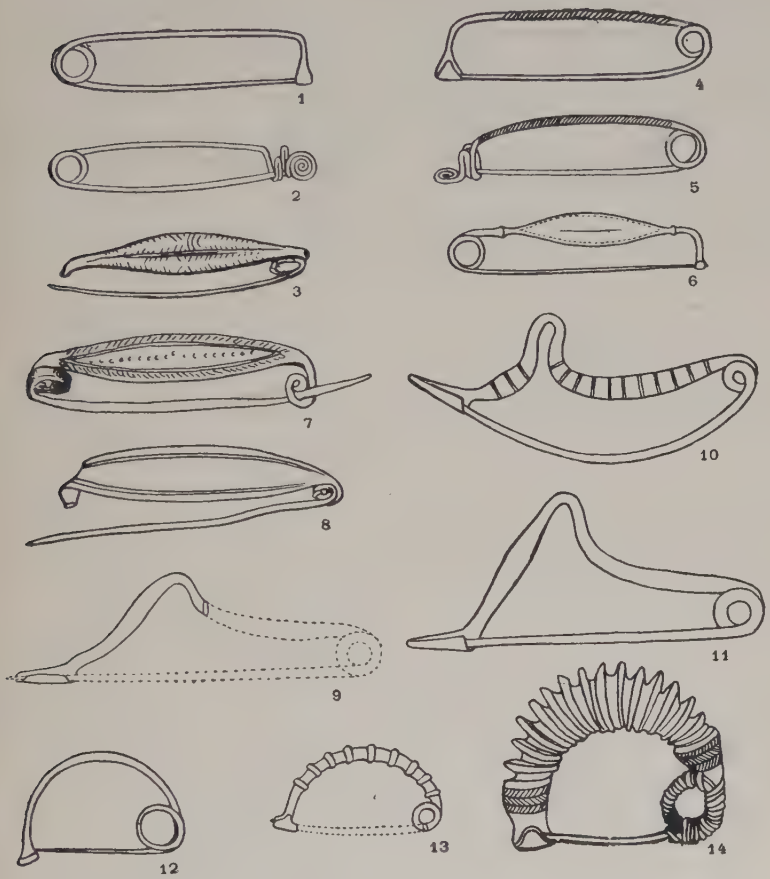


FIG. 300.—Bronze age fibulæ (1, 2, 3) Mycenæ. (4) *Peschiera.* (5) N. Italy. (6) Central Italy. (7) Marne. (8) Rhine Province. (10, 11) Sicily. (12) Corcelette. (13) Larnand (Jura). (14) Möringen.

and beyond is supported by its absence from the acropolis graves of Mycenæ, and the five earlier cities of Hissarlik,

[1] Montelius, *Spännen frau Bronsälderen* (1880-2), and *La Civilization primitive en Italie* (1895); Ridgeway, *Early Age of Greece*, chap. VI.; Undset, *Zeitschrift fur Ethnologie* (1889), p. 205; O. Tischler, *Beit. z. Anthrop. u. Urgeschichte, Bayern*, IV. (1881), p. 47, Taf. IV and V.

and by the fact of its becoming less common as we pass down the Balkan Peninsula to the Ægean. On the other hand, fibulæ of the Peschiera type were discovered in the later chamber tombs of Mycenæ, at Salamis and Delphi and at Enkomi in Cyprus. But they are here contemporary with iron, none can be said to be of the Bronze Age.[1] In Cyprus they possibly do not date earlier than the seventh century B.C.[2] Some doubt has been raised as to the North Italian origin of the fibula owing to the distribution of the *disk brooch*, from which our modern round brooches are probably derived. This has two or four spirals forming the body (Fig. 301). Disk brooches occur in Greece and Southern and Central Italy, but never in Northern Italy, although they are so common at Hallstatt that they are sometimes spoken of as the Hallstatt type. If the view is correct that this type was evolved by attaching the essentials of the safety-pin fibula to circular disks already made for other purposes, it would seem

Italy.

Greece.

Hallstatt.

FIG. 301.—Disk fibulæ.

[1] Tsountas-Mannatt, *The Mycenæan Age*, p. 163, Figs. 57, 58 and 59; Schuchhardt, *Schliemann's Excavations*, p. 296; *Brit. Mus. Cat. of Bronze* (1899), by H. B. Walters, Introduction, p. lix; Myres and Ohnefalsch-Richter, *Cat. of Cyprus Museum* (1899), p. 15.

[2] *Excavations in Cyprus* (Turner Bequest) by A. S. Murray and others (1900); *Brit. Mus. Cat. Bronze*, p. lx. This late date in Cyprus is stoutly denied by Sir A. J. Evans in *Jo. Anthrop. Inst.* (1900), in his paper on "Mycenæan Cyprus". "At Enkomi where the mature stage of Mycenæan Art was represented fibulæ occurred of a type certainly not later than the twelfth century B.C." (p. 205). And at Curium two fibulæ are said to be from a Bronze Age site: *Excavations in Cyprus* (Turner Bequest), p. 68.

that its place of origin was probably somewhere in Central Europe, for whilst such spiral disks do not occur in Greece or the Ægean, they are well known in the Danubian region, in Bosnia, Herzegovina and in Hungary. It certainly is remarkable that if this type originated in Greece it should be so common at Hallstatt, or on the other hand if it originated in Central Europe it should not have reached Northern Italy, for all probability points to the Bronze Age population of that part of the Peninsula having come from Central Europe, either from Switzerland, or from the Danubian Valley.[1]

The first modification of the safety-pin fibula, or Peschiera type, consists in the body assuming a bow shape, so as to make it better adapted to hold the garment. This "bow" type is found all over Italy, in Bosnia, Hungary, and as far east as Koban in the Caucasus where it occurs in large numbers. The same form in gold appeared in the lower city of Mycenæ, and at Maroni in Cyprus.

The bow is next modified to assume a leech, boat, kite, or serpentiform shape, or it may be transformed into a series of knobs (see Fig. 300). These Italian forms are rare west of Bavaria. They have been found in some of the Swiss Lake Dwellings, as Chevroux, Estavayer, Möringen, and Wollishofen,[2] and are common at Hallstatt along with forms absent from or rare in Italy. All these Italian brooches have the spring on one side only.

Graves at *Certosa*, near Bologna, contained brooches with the end of the catch turned up, often with a knob at the extremity.[3] This so-called "Certosa type" (Fig. 302) also occurs beyond the Alps, and affords a connexion between

[1] Cf. *Stone and Bronze Ages in Italy*, p. 510, by T. E. Peet.

[2] Munro, *Lake Dwellings of Europe*, Figs. 3, 6, 12, 13.

[3] Cf. A. Zannoni, *Gli Scavi della Certosa di Bologna*, Atlas, Plates 27, 28, 29.

the Italian brooch proper, and that which played so great a rôle in Keltic lands during the Early Iron Age.[1] It has in fact been described as the mother of the Keltic type of fibula known as *La Tène*, after the Early Iron Age settlement at Marin, on the Lake of Neuchatel, where numbers of them were found. This turning up of the catch end is characteristic of the La Tène fibula, but it presents another important modification in the spring being on both sides of the bow, instead of on one side only as in all Italian forms, it is bilateral. The earliest La Tène fibulæ are probably almost contemporaneous with the Certosa brooch, and if so it is possible to date their origin. In the Certosa graves containing fibulæ were Greek vases and Etruscan objects of the fifth century B.C., which may therefore be taken as

FIG. 302.—Bronze fibulæ. Certosa type. (Two-thirds size.)

approximately the time when the La Tène fibula was invented.[2]

The *La Tène fibula* is widely distributed over Western Europe from the Upper Danube to Gaul and Britain. It is the characteristic brooch of the Early Iron Age in these regions, and *three progressive types* can be distinguished. Its presence may therefore give useful corroborative evidence of the age of articles with which it is found associated. All these three types are found in Britain and we may therefore briefly consider their occurrence there, and their relation to Late Keltic Art.

The *La Tène I* type is a modified safety-pin in which the foot is turned back until it touches the bow. The pin

[1] Montelius, *La Civilisation primitive en Italie* (1895), p. iii.

[2] Cf. Zannoni, *op. cit.*; Montelius, *op. cit.*, p. v, Plates 100-6.

forms one piece with the spring which has coils on both sides of the bow. In a barrow at Cowlam in Yorkshire, containing the remains of a woman, Canon Greenwell found, together with an armlet and a necklace of glass beads, a fibula of this type. The original bronze pin had been replaced by one of iron inserted into a piece of wood placed within the spring.[1] Fibulæ of this form have been found, among other places, at Brentford Ferry, Water Eaton, and several sites in the Thames valley, at Avebury, and Box in Wiltshire, and Blandford in Dorset. This type may be decorated by ornamenting the bow or the foot.

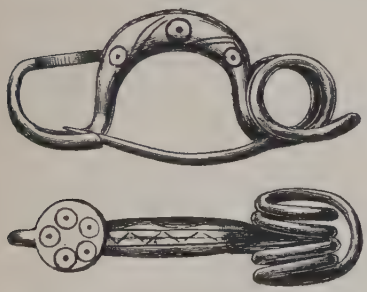


FIG. 303.—La Tène fibula. Type I. Water Eaton, Oxon. (Natural size.)

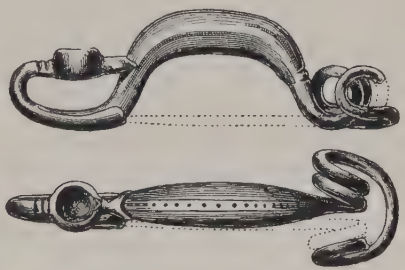


FIG. 304.—La Tène fibula. Type I. Avebury, Wilts. (Natural size.)

In the Water Eaton specimen (Fig. 303) the bow is ornamented with incised lines, chevrons, and circles, and the foot terminates in a disk, on the upper surface of which are five little engraved circles, with a central dot like those on the bow. The examples from Avebury (Fig. 304) and Blandford have the upper surface of the bow engraved with a line of dots between two parallel lines, and the foot ends in a knob, in the former showing a depression probably once filled with coral. A grave in the remarkable prehistoric cemetery discovered at Harlyn Bay, near Padstow, in Cornwall, contained two bronze La Tène fibulæ of rare type (Fig. 305). Each of them has the turned up foot surmounted

[1] *British Barrows*, Fig. 111, p. 208.

with a large circular disk with moulded concentric lines on its upper surface. In place of the spring is a cross-bar (terminating in rounded knobs) with grooves simulating

Fig. 305.—Harlyn Bay fibula.

the coils of a spring. The pin has been lost, but it was apparently attached to the cross-bar by two turns, one on each side of the bow. These fibulæ are of particular interest, for whilst nothing exactly like them has been found elsewhere in Britain, they resemble forms found in Spain, thus pointing to connexion between Cornwall and the Iberian peninsula at this period.[1]

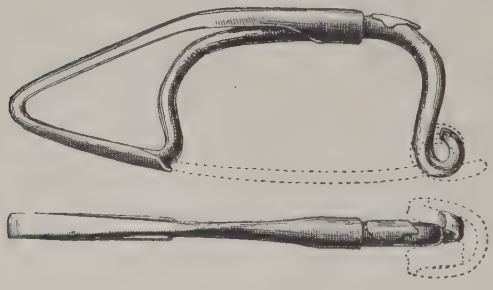


Fig. 306.—La Tène fibula. Type II. Royal Exchange. (Natural size.)

[1] These fibulæ are now in the Truro Museum, to the Curator of which, Mr. G. Penrose, I am indebted for kindly sending me a photograph of them which is here reproduced. Cf. *Proc. Soc. Antiq.*, 2nd Series, XXI. (1907), p. 372 and Figs. for a note by Sir C. H. Read on these fibulæ: and Cartailhac, *Les Ages Préhistoriques de l'Espagne et du Portugal*, Figs. 422-8, p. 298. Cf. also *Matériaux*, x. (1879), p. 499; Plate XIII, "Les Tumulus d'Aveyac-Prat" (H. Pyrenées), par Piette et Sacaze.

In the *La Tène II* type, the turned back foot does not merely reach the bow, but embraces it, yet is distinct from it ; there is no actual fusion of the two. A fibula discovered on the site of the Royal Exchange, in the City of London, is a good example (Fig. 306).

The *La Tène III* type shows a further stage. The turned back foot is now completely joined to the bow, forming one piece with it. A raised ring may at first show the place of union, a sort of transition stage between types II and III. This is well illustrated by a fibula found in the Glastonbury Lake Village,[1] and by another from Walmer in Kent (Fig. 307). In the latter the ring is covered with hatched incisions, possibly for the insertion of enamel after the manner of the Mont Beuvray work. The turned

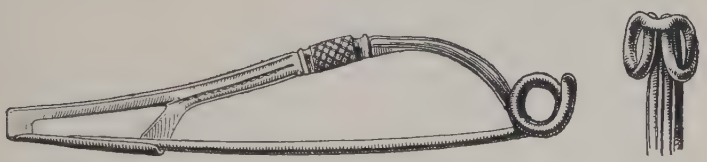


Fig. 307.—La Tène fibula. Type III. Walmer, Kent. (Two-thirds size.)

up foot now makes with the bow an enclosed space. At first this space is completely open as in a specimen from Glastonbury,[2] and a broken specimen from Aylesford.[3] Later it becomes partly filled with some ornamental motive, as in a silver brooch from Great Chesterford (Fig. 308), in Essex, and in a bronze specimen taken from the Thames.[4] Finally, it became quite filled in, thus forming a plate, well seen in an example from Glastonbury.[5] A surface was thus

[1] *Glastonbury Lake Village*, by Bulleid and Gray, Plate XL, Fig. E, 173.

[2] *Ibid.*, Plate XL, Fig. E, 185.

[3] *Archæologia*, LII., Fig. 19, p. 38.

[4] Most of these fibulæ are in the Brit. Museum, and are figured in the official *Guide to the Early Iron Age*, by Mr. R. A. Smith. I am indebted to the Museum authorities for permission to reproduce them.

[5] *Op. cit.*, Plate XL, Fig. E, 20.

provided capable of decorative treatment. This is well illustrated by a pair of silver-gilt brooches discovered at Backworth in Northumberland[1] (Fig. 309). These probably date from Roman times, for with them were coins of Antoninus

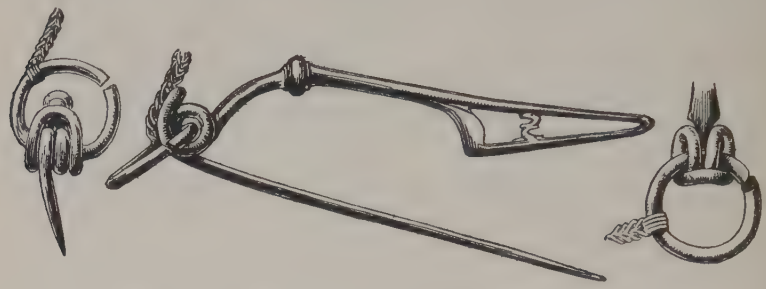


Fig. 308.—La Tène fibula. Type III. Great Chesterford, Essex. (Two-thirds size.)

Pius, but the character of the design ornamenting the plate unmistakably bespeaks the Late Keltic artist. This brooch naturally leads to the consideration of another which was probably made towards the end of the second century A.D.,

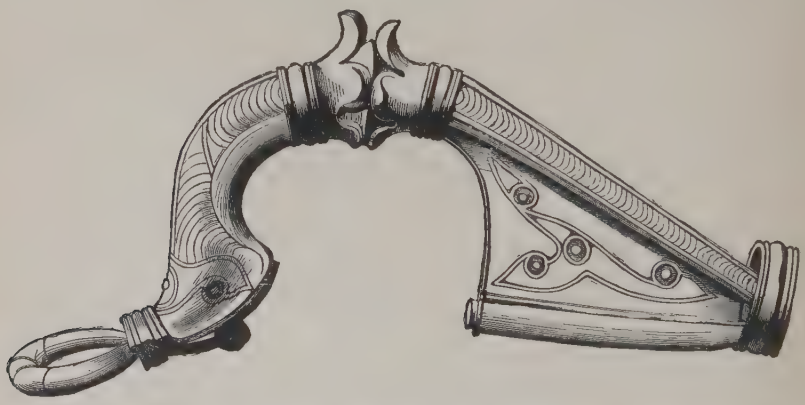


Fig. 309.—Silver-gilt fibula. Backworth, Northumberland. (Natural size.)

but yet is one of the finest products of British Keltic art that has come down to us. Inside the western guardroom of the south gate of Aesica, a Roman station on Hadrian's

[1] *Archæological Journal*, VIII. (1851), Plate opposite p. 39.

wall, some $3\frac{1}{2}$ feet beneath the débris which filled it, were revealed *two bronze gilt brooches*, which "must be reckoned among the most remarkable objects of the kind which have ever been discovered," and the larger of the two "of its kind is probably the most fantastically beautiful creation that has come down to us from antiquity"[1] (Fig. 310). After pointing out how it differs from Roman fibulæ by its great size, its excellent gilding, and in being ornamented with a succession of exquisite designs of Keltic scroll-work in relief, instead of formal decorative ones, Sir A. J. Evans says its Keltic character reached a measure of freedom and originality "which places it almost quite alone among relics found in Imperial Britain during the centuries of Roman dominion . . . here we have a specimen of truly flamboyant decoration". The best explanation of the striking Late Keltic decoration on these brooches is that

FIG. 310.—Bronze-gilt brooch. Aesica, Northumberland. (Natural size.)

[1] Sir A. J. Evans in *Archæologia*, LV., p. 179, where he gives a full and most interesting description of the brooch.

they were made in Caledonia beyond the pale of Roman power, where the Keltic artist was still able to foster and develop his genius untrammelled by the Southern invader. Their presence at Aesica may be accounted for without much difficulty. They may well have been part of the booty of some Roman soldier during a campaign in the far north, who on his return was quartered at this fort.

On the Aesica brooch, as on those from Backworth, there will be noticed at the back a ring or loop. This

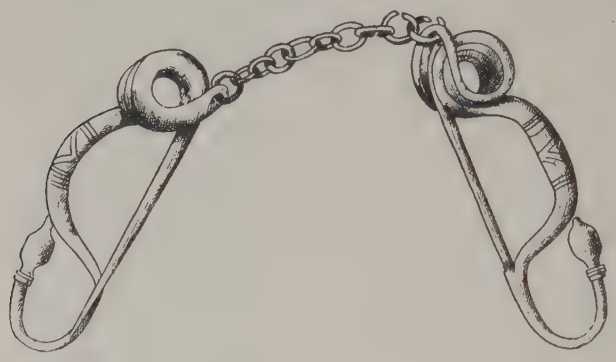


Fig. 311.—Fibula with connecting chain. Somme Bionne (Marne).

was for the attachment of a chain. The La Tène brooches were worn by the Keltic women in pairs connected by a chain. A small piece of chain still remains attached to the Great Chesterford silver brooch. Several pairs of brooches with chains complete have been found in the Department of Marne in France[1] (Fig. 311).

[1] E.g. at Somme Bionne (La Tène, I), Contresoul (La Tène, I), Hultz l'Eveque (La Tène, I), Sommesous (La Tène, II). For permission to reproduce the illustration (Fig. 311) I have to thank the author and publishers of *Guide Illustré Musée St. Germain*, M. S. Reinach and MM. Eggimann.

CHAPTER XIII.

LATE KELTIC POTTERY.

Examination of the pottery of the Early Iron Age in Britain reveals the use of the potter's wheel, but much of the ware was hand-made. Neither glaze nor slip was used. Its ornamentation was produced by engraving and moulding. No painted pottery like that found on the Continent has yet been discovered. From tumuli of this period at Cowlam, in Yorkshire, Canon Greenwell obtained pottery of a plain, hard-baked, dark-coloured character, and also a finer ware, porous and lighter in colour. A good deal of this pottery is distinctly different from that of the Cinerary urns, Food vessels and Beakers of the Bronze Age,[1] and generally the ware of this period is superior to and better fired than that which preceded it.

Whereas the objects of the Bronze Age occur sporadically, singly or a few together, or in hoards, and do not indicate any considerable segregation of the population,[2] the Early Iron Age in Britain is illustrated by several collections of a great variety of articles, spread over a consider-

[1] *British Barrows*, p. 208.

[2] Pitt Rivers describes four Bronze Age settlements or camps in Dorsetshire—South Lodge, Martin Down, Handley Hill, and Angle Ditch. Apart from pottery little was recovered from them, a few bronze razors, an awl and a palstave. The largest camp covered only 2 acres, the smallest $\frac{1}{4}$ acre. See *Excavations at Cranbourne Chase*, IV., pp. 13-15. Plates 240, 245, 248, 306.

able area, conclusively proving the existence of definite settlements, of people living in villages or camps. In these characteristic pottery occurs, the ornament of which is distinctly late Keltic. Two examples may be taken in illustration, namely Hunsbury Camp, near Northampton, and the Lake village close to Glastonbury in Somersetshire.

Hunsbury Camp was situated $1\frac{3}{4}$ miles south-west of Northampton on a broad ridge commanding to the north-east the valley of the Nene. Oval in shape, it covered an area of about 4 acres, and was surrounded by a fossa fifty to sixty feet wide, and fifteen deep. Like so many other ancient encampments in Britain it was locally known as Danes' camp, but there is no ground for associating the relics found there with the Danes. On the contrary they unmistakably point to a much earlier time, viz. the Early Iron Age. This camp was described as long ago as 1712 by Morton, but its real character was discovered only about thirty years ago, and its thorough exploration was the result of its destruction for the purpose of reaching a rich deposit of iron ore lying beneath it. Excavations carried out during the years 1882-6 revealed the presence in the soil above the iron-stone of some 300 pits, in many cases reaching down to the ore deposit. These pits were filled with black earth in which lay many articles showing by their character and variety that a considerable population must have resided on the spot. These remains included iron tools and weapons, as spear-heads and daggers, knives and saws, some still with their hafts of deerhorn : bronze scabbards and ornaments, among the latter being four fibulæ of La Tène III type, pins and rings, objects of bone and stone, like combs, spindle whorls, and portions of more than 100 querns or millstones, some of them with the ground corn still in them : parts of the tyres of chariot wheels, bridle bits and three shield bosses. There were remains of animal life in the shape of human bones, and

those of animals such as the red and roe deer, short-horned ox, goat, horse, pig and dog. The pottery is wholly of a kind suited for domestic use. We have evidence therefore of the former existence on this site of a settled community practising agriculture, weaving and making pottery for daily use, and with it all no sign of Roman influence. This is all the more striking from the fact that at Dunston, only $1\frac{1}{2}$ miles distant, many Romano-British articles were discovered along with Roman coins. It was clearly a British settlement of the Early Iron Age, a conclusion

Fig. 312.—Late Keltic pottery. Hunsbury Camp.

confirmed by the Late Keltic decoration of the two scabbards (Fig. 276) and on the *pottery*. Remains of more than 400 vessels of different form and size have been recovered. Of these eighteen are complete, or nearly so. It is all dark grey or dark brown in colour and unglazed. The fragments are for the most part plain, but a few of them, of finer ware, are ornamented with spiral designs characteristically late Keltic. These are all the more noticeable because they are moulded in lines and dots showing graceful returning spirals (Fig. 312). Pieces of one bowl are

ornamented with a pattern composed of lozenges and triangles filled in with incised lines: it is divided by two parallel lines running round the vessel slightly suggestive of the cordoned pottery about to be mentioned.[1]

Glastonbury Lake Village offers still more striking evidence of an Early Iron Age settlement. In a meadow about a mile from the town of Glastonbury, only 16 feet above sea level, were observed, about twenty years ago, a number of scarcely perceptible mounds, the careful exploration of which has revealed the existence here, before the arrival of the Romans, of a people living, comparatively speaking, in a highly civilized state. The village, extending over an area of 3½ acres, included about ninety mounds, and was surrounded by a palisading of very irregular outline. Excavation of the mounds has shown that each represents a dwelling. The floor was supported on several layers of tree trunks and brushwood. Small piles in hundreds kept in position the upper layers, especially at the edge of the mound. Successive layers of clay, each having a hearth, proved that in many cases the floors had been gradually raised. This was no doubt necessitated by the growth of the peat: in some instances as much as 5 feet of peat accumulated during occupation showing that it must have lasted a considerable time. The huts were circular, 18 to 35 feet in diameter, with walls built of poles 6 feet high, and about a foot apart, and wattle and daub between them. The roof was probably a thatching of reeds supported by a central pole. The entrance in some cases is clearly traceable, a few rough slabs of lias stone forming the doorstep, a piece of timber the threshold. The hearth, generally in the centre, on the highest part of the floor, was roughly circular, about 4 feet in diameter. It was made either of a few

[1] Sir H. Dryden, *Northampton Architectural Society* (1885), in *Associated Architectural Societies*, Vol. XVIII, p. 53.

slabs of stone embedded in the clay, of rubbly stones on gravel, or simply of clay. There are indications of a causeway, connecting the village with the mainland, in the form of a ridge of clay 9 to 18 inches wide, covered with rubbly lias stone. There is no evidence of Roman culture, and the numerous varied objects recovered from the mounds prove to a certainty that this lake village was an Early Iron Age settlement. The many articles of iron include different kinds of tools, knife, dagger, and spear-head, bill-hooks, a sickle, horse-bits and currency bars. Bronze is represented by a mirror, fibulæ and a beautiful little bowl with a border of two narrow raised bands, and a row of semicircular knobs round the middle. Several pieces of lead and a real curiosity in the shape of a bar of tin 5 inches long, were also found. The stone articles include thirty querns, hundreds of whetstones, also hammerstones and crucibles; rings and armlets of Kimmeridge shale: more than a hundred spindle whorls with which must be associated a number of bone weaving combs, engraved with incised lines and circles. Other finds were a jet ring, beads of amber and glass, and a lathe turned box with four dice marked 1 to 6. The peat has preserved several wooden articles, as a bowl, cups, a door, ladder, and boat 18 feet long. Also the nave of a wheel 18 inches in diameter, with spokes 12 to 13 inches long. Four human skulls, and the bones of animals in great abundance proving that the shorthorn, goat, sheep, hog, and horse were common, but the dog rare; also many birds, among them the pelican not now found in north-west Europe. Seeds of the oak, alder, birch and vetch, barley and hazel-nuts give some idea of the vegetation. Holding in mind these numerous and most varied objects, little imagination is required to picture the life led by the inhabitants of this most interesting British village. They engaged in agriculture, domesticated animals, wove the clothes they wore, were

carpenters, workers in bronze and iron and potters. Their *pottery* is of much interest, for although mostly in fragments, it occurs in large quantity, and is both hand and wheel made. The ware is both coarse and fine, black and grey in colour, in one case red. It is, however, the decoration of some of the fragments that chiefly attracts at-

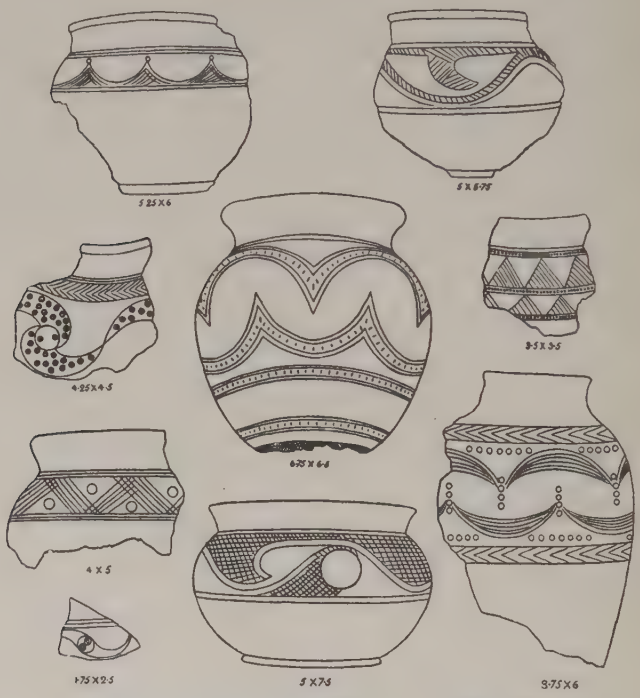


Fig. 313.—Pottery from Glastonbury Lake Village.
(From a photograph by Dr. A. Bulleid.)

tention, for it displays unmistakably characteristic Late Keltic curvilinear designs, and thus affords a further proof of the period to which this settlement must be attributed (Fig. 313). Further use of clay is seen in the thousands of unbaked pellets for slings, and in terra-cotta triangular bodies, presumably loom weights.[1]

[1] *British Lake Village, near Glastonbury*, by Bulleid and others (1904). *Glastonbury Lake Village*, by A. Bulleid and H. St. G. Gray

Evidence of Late Keltic decoration of *wooden* articles was, from the nature of the material, hardly to be expected. Nevertheless specimens have been recovered from this Lake Village. Part of a tub cut out of the solid, about 6 inches high and 12 in diameter, is ornamented with a bold and graceful engraved curvilinear design, consisting of returning spirals with trumpet terminals. The shading is made by cross hatching with a dot in each mesh. A piece of another *bowl* is ornamented with an incised and burnt-in pattern composed of semicircular lines enclosing and joining two reversed spirals which terminate in trumpet-shaped expansions. The shading is the same as that of the other bowl.[1] We may compare with these a piece of ashwood 5 inches square from the Lochlee Crannog, near Tarbolton in Scotland. On both sides of it are deeply cut curvilinear or spiral designs.[2] About three miles from Glastonbury, at the village of Meare, another Lake Village has been discovered. Excavations there have revealed many objects similar to those at Glastonbury. The *pottery* is important from its amount and character. Several hundredweights of fragments have been recovered. The proportion of ornamented pieces is greater than at Glastonbury, and include many new and highly ornate designs.[3] Sherds of pottery ornamented with Late Keltic designs were among the relics found at Yarnton in Oxfordshire, in the black mould at Kent's Cavern, near Torquay, and by General Pitt Rivers at Mount Caburn in Sussex.[4]

The most remarkable discovery of pottery in Britain,

(1911). The block of Fig. 313 has been very kindly lent by the Somerset Arch. and Nat. Hist. Soc., Taunton.

[1] *Glastonbury Lake Village*, Plates L, LI, and Figs. 64, 139.

[2] Munro, *Lake Dwellings of Europe*, p. 411, Figs. 144 and 145.

[3] *Nature*, 23 November, 1911.

[4] *Archæologia*, XLVIII., Plate XXV. Also at Kingsholm (Gloucestershire) and Highfield near Salisbury.

attributable to this period, is that made at *Aylesford*, in Kent. Here were unearthed, in 1866, a number of cremated burials arranged in a circle, accompanied by so much pottery that the term *Urnfield* has been applied to them. No mounds show the place of interment. The most striking vessels are pedestalled and cordoned (Fig. 316). They are wheel made and of finer ware than that of the preceding Bronze Age. This style of ceramic spread over a considerable part of south-east England, if not beyond, for it has been found in Hertfordshire, Essex, Bedfordshire, Buckinghamshire, Berkshire, and in the counties of Northampton, Surrey, and Dorset[1] (Figs. 314,

Fig. 314.—Late Keltic pottery. Hitchin, Hertfordshire.

315). This ware is so different from other British pottery that a different origin is naturally suggested. The question has been carefully investigated by Sir A. J. Evans who has arrived at some interesting conclusions pointing to the connexion between Britain and the Continent at this period. "In the Late British Urnfield at Aylesford," he observes, "we have for the first time a native example of an 'urn-field' belonging to the period which preceded the Roman invasion, the immediate antecedents of which are to be sought in the Belgic parts of Gaul, but which may be ultimately traced to an extensive Illyro-Italian province, and to a

[1] See especially "Late Keltic Pottery found at Hitchin" in *Proc. Soc. Antiq.*, XIII. (1889), p. 16, and "Late Keltic Antiquities discovered at Welwyn," by R. A. Smith in *Archæologia*, LXIII. (1912), p. 1.

south branch of the urn-field group characterizing the Early Iron Age of East Central Europe."[1] No article of purely Roman manufacture was found at Aylesford, but a fibula of La Tène III type, and the date of the burials may with some confidence be put not later than the middle of the first century before Christ.

The same kind of pottery in similar interments occurs in north-east France, and there can be little doubt that it was introduced into south-east Britain from Gaul, and

FIG. 315.—Late Keltic pottery. Shoeburyness, Essex.

thence spread over the area just mentioned. This might very well be the result of the invasion of a Gaulish tribe, and we know that at the time of Cæsar's invasion the Belgæ occupied both sides of the eastern part of the Channel. It is worthy of note that a gold coinage of Belgic type derived from the Philippus first appears in south-east Britain about the middle of the second century, B.C. This was probably the time of this Gaulish invasion. A study of the Aylesford pottery thus supports the view based on Cæsar's story, and the gold coinage,

[1] *Archæologia*, LII., p. 37, from which the account following is taken.

that there was a Gaulish invasion followed by a considerable settlement in the south-east of Britain in the second century before Christ. Sir A. Evans seeks for the origin of the Aylesford type of pottery still farther east. Analogous forms occur in Eastern Gaul and in Alpine districts. Beyond the Alps in North Italian cemeteries of the fourth and fifth centuries B.C., e.g. at Este, similar pottery is found. The cordoned pottery of Este which may be compared with that from Aylesford, is evidently copied from bronze vessels of similar design. This cordoned pottery occurs not only in the Venetian and Euganean districts of Northern Italy, but also on the other side of the Adriatic. Hence North Illyrian, or Italo-Illyrian are terms which have been applied to it. Its transmission from Italy may be explained much in the same way as its passage across the English Channel, namely by Gaulish invasions in the fourth and fifth centuries B.C. The extensive migrations of Gaulish tribes is indicated by the presence of the Veneti at the mouth of the Loire, of the Cenomani in Maine, and the Senones at Sens and Singaglia.

With the pottery in an interment at Aylesford were several bronze objects, as a *Jug*, a patella, fibulæ and a *Wooden Bucket* with three bronze bands, the uppermost of which is ornamented with designs of embossed scrolls, and confronted stylized animals (Fig. 316). At the points of attachment of the handles are bronze heads.[1] When making this bucket the craftsman has evidently had in mind some classical model of which he has made an inferior copy, introducing at the same time the Late Keltic scroll design. The jug is also of classical design, and is of later date than 300 B.C. All this may be brought in support of the original source of the pottery being Northern Italy or Illyria as suggested, and it also attracts attention in relation to the

[1] *Reliquary* (1897), p. 35.

view that Late Keltic ornament has Greek or Etruscan influence behind it.

FIG. 316.—A grave in the Aylesford Urn Field containing pedestalled cordoned pottery, bronze jug and patella, and bronze-bound wooden bucket with embossed designs.

With the bucket from Aylesford may be compared two others. One from *Elveden* in Suffolk, the other is known as the *Marlborough* bucket. The former is bound with a

broad central band of bronze bearing two plain handles, and ornamented with engraved circles enclosing scroll designs[1] (Fig. 317). The latter was illustrated long ago by Sir Colt Hoare in his *Ancient Wilts*, and described as coming from Marlborough in Wiltshire. It is bound with three circular bronze bands ornamented with opposed quadrupedal

Fig. 317.—Bucket found at Elveden, Suffolk.

figures and human heads in repoussé. The elaboration of the design in this case suggests a foreign origin and recalls ornamentation of Hallstatt type. Its importation from Gaul is supported by the presence of similar figures on coins of Armorica and the Channel Islands. The middle

[1] *Archæologia*, LII., p. 359.

band carries two drop handles.[1] Here attention may appropriately be called to another bucket, or rather tankard, discovered at *Trawsfynydd* in Merionethshire, the handle of which is a beautiful piece of pierced metal work made up of Late Keltic curves and scrolls. It is $5\frac{1}{2}$ inches high by 7 wide and is completely covered on the outside with sheet bronze. Two pairs of incised concentric circles ornament the bottom, in the centre of which is a bronze knob. "Both the ingenuity displayed in the construction of this remarkable vessel, and the artistic feeling which pervade its decorative features are worthy of our highest admiration." It is "no doubt one of the oldest wooden vessels composed of staves that has been found in Britain, and proves that the trade of the cooper in this country probably dates back beyond the Christian era".[2]

[1] *Ancient Wilts*, Plate VI. *The Reliquary*, III. (1877), p. 35, Fig. 48.

[2] *Archæologia Cambrensis*, 5th Series, XIII., Plate opposite p. 216.

CHAPTER XIV.

OBJECTS OF IRON AND STONE.

1. *IRON ORNAMENTS.*

Nothing relating to the Early Iron Age in Britain is more singular, and in a sense more paradoxical, than the paucity of iron objects. The rapid oxidation of the metal in a damp climate may account for much, especially when they have been left singly or in small numbers unprotected in the soil. Anything in the shape of ornamental iron work referable to this period is very rare. This no doubt is chiefly due to the unsuitability of the material for the ornaments in use at the time. The only iron ornaments apart from an iron torque which can with any confidence be regarded as of Late Keltic workmanship are *Iron Fire-Dogs.* A pair of these from Careg Coedog in Denbighshire, consist of two upright wrought iron bars, 2 feet 6 inches high, topped by horned animal heads, and supported by semicircular arched feet, just above which they are connected by a horizontal bar, 2 feet 10 inches long. The uprights are ornamented with thin flat bars of iron in semicircular loops, with rivets in the depressions, and spiral coils at the bottom.[1] Similar fire-dogs with horned heads on the uprights, but wanting the ornamental work, have been discovered in the following places in England. At Mount Bures in Essex, near the Stour Valley Railway,

[1] *Archæologia Cambrensis*, 6th Series, 1., p. 40, Fig. 6.

in 1884.[1] In a tumulus at Hay Hill, between Barton and Wimpole, in Cambridgeshire, with other iron objects, including a chain with six collars.[2] At Stamfordbury, near Shefford in Bedfordshire, in 1832. With this specimen was an iron bar with a hole at the end, which is supposed to have been laid across the top supported between the horns of the stags' heads for suspending food over the fire. Their height is 2 feet 8 inches.[3] At Welwyn in Hertfordshire, in 1906, the remains of three fire-dogs were discovered. An interesting point about these is that the horns terminate in rounded knobs. In the vault containing two of them was an object unique as far as this country is concerned, though specimens have been found in north-east France. It is an *Iron Frame*. The uprights are 42 inches high, and 4 inches wide at the upper part. The horizontal bands, 2 inches wide, are $28\frac{3}{4}$ inches long in front, and $22\frac{1}{2}$ inches wide at the sides. The ornamentation consists of twisted iron bars along the sides of each upright, and shorter ones down the front. The latter end in semicircular rivets, the surface of which is pitted.[4]

2. *STONE OBJECTS.*

At *Turoe*, three miles from Loughrea, County Galway, Ireland, is a block of granite, four feet high, with rounded top. The upper part is elaborately sculptured in spirals and scrolls thoroughly Late Keltic in character. Immediately below this sculptured work is a simple fret pattern. Two other examples of the same kind are known in Ire-

[1] C. Roach Smith, *Collectanea Antiqua*, II., p. 25, Plate X.

[2] *Archæologia*, XIX., p. 61.

[3] *Graphic and Historical Illustrator* (1834), p. 378.

[4] *Archæologia*, LXIII. (1912), pp. 5, 13, Plate I. "Late Keltic Antiquities discovered at Welwyn, Herts," by R. A. Smith.

land. One at *Castle Strange*, County Roscommon, is an erratic piece of granite, measuring 3 feet by 2 feet 3 inches by 2 feet. The design is not in relief as on the Turoe stone, but incised and forms continuous returning spirals. The other at *Mullaghmast*, County Kildare, is a broken fragment of limestone, square in section, 3 feet high and 1 foot 3 inches wide. "The carving is later in treatment than the preceding. It is more geometrical, the incised pattern in particular being of the interlocked C scheme order frequently found on Christian monuments. There is more or less carving on all four sides. Bands round the base show that it was intended to be set upright, and was in fact a stele, nothing Christian about it."[1] These stones go to show that the La Tène style of ornament had taken root in Ireland before the Christian period, and that the La Tène antiquities found there from time to time are not to be accounted for merely as the result of trade or raid from Britain and the Continent.

A number of *Facetted Stone Balls* with Late Keltic engraving on them have been found in Scotland. One of the most interesting is of clay slate and comes from Glass Hill in the parish of *Towie*, in Aberdeenshire (Fig. 318). It is 3 inches in diameter, and its surface is divided into four boldly projecting curved disks. Three of these are engraved with double spirals, concentric wavy lines, interrupted concentric circles, and escaping spirals. One disk is more elaborately ornamented and larger than the others, the fourth is quite plain.[2] Several ornamented stone balls of this type, though not so elaborately engraved, have come to light in different parts of Scotland, e.g. at Glastulan in

[1] G. Coffey, *Proc. Ro. Irish Academy*, XXIV. (1904), p. 257, Plates XVIII-XXII; cf. *L'Anthropologie*, XVI., p. 241, where it is compared to the stone at St. Goare on the Rhine, which is however clearly much later.

[2] Evans, *Stone Implements of Great Britain and Ireland*, Fig. 352, p. 421; *Proc. Soc. Antiq. Scotland*, III., p. 439.

Forfarshire, Fourdown in Kincardine, Elgin, Inverary, and Loch Lochy ; others of a nodular character at Ballater, the Tay, Skye, and Orkney. The facets of others again are quite plain. These would perhaps be more correctly described as cylindrical rather than circular in shape.[1] The distribution of these stone balls is singular, for whilst they have been found all over Scotland from Dumfries in the south to Orkney in the north, and from Skye to Aberdeenshire, they are unknown anywhere else, except for a specimen in the Greenwell collection in the British Museum

Fig. 318.—Engraved stone ball. Towie, Aberdeenshire.

said to come from Stanwix in Cumberland, and another found at Ballymena, County Antrim, Ireland.[2] They are not improbably copied from a metal prototype, for at Walston in Lanarkshire a ball of cast bronze, $1\frac{1}{2}$ inches in diameter, divided into two hemispheres, was discovered. Deep grooves divide each hemisphere into six disks, on each of which is deeply engraved a spiral with rounded or bifid terminals.[3] It is quite uncertain to what use these

[1] *Proc. Soc. Antiq. Scotland*, XL., p. 290, Plate I.

[2] *Archæological Journal*, XI. (1854), p. 58.

[3] *Scotland in Pagan Times, Iron Age*, p. 161, Fig. 141.

stone balls were put. One suggestion is that they were used in some kind of game, another for divination purposes. Some think they had a totemic significance, others that they were slingstones comparable to the bolas of the South American Indians. If used in this way, the reason for ornamenting them is not very obvious. The plain and nodulated ones have been regarded as mace heads, similar to those with pyramidal prominences which lasted down into the Middle Ages, and may be seen illustrated on the Bayeux tapestry.[1]

[1] J. A. Smith in *Proc. Soc. Antiq. Scotland*, XXIV., pp. 58-62.

CHAPTER XV.

THE ORIGIN OF LATE KELTIC ORNAMENT.

Being now conversant with the nature of Late Keltic ornament and the material through which it is exhibited, the question of its origin may in conclusion be very briefly considered. As we have seen, the ornamentation of metal and pottery during the Bronze Age in Britain was strictly geometrical, the designs being for the most part rectilinear, and the spiral motive conspicuous by its absence. In the succeeding Early Iron Age a striking change is apparent, for the designs now not only include various curvilinear and spiral patterns, but these are dominant, and moreover are so characteristic and distinctive that any object on which they appear can be recognized without much difficulty as being of Late Keltic origin. Further, the decoration was sometimes enhanced by the use of coral and enamel. What was the cause of this change? It must either have arisen in Britain, and have been of indigenous origin, or it must have been introduced from the Continent. Now although in the British Isles during the Bronze Age the spiral does not appear on metal or pottery, it is seen on stone in Scotland, the north of England, and especially in Ireland, and curvilinear designs occur sporadically as for example on the Folkton chalk drums, on a bronze buckler found in Coveney Fen near Ely, and as circles on socketed

celts. The spiral as an ornamental motive must therefore have been known to some artificers at the close of the Bronze Age. This being so it is possible that in the hands of an original artist some of the Late Keltic designs might be evolved, and it is significant that some of the best examples of Late Keltic decoration have been found in Ireland. Once this new form of ornamentation had manifested itself, its beauty and charm would appeal to every artistic member of the community, could not fail to be much copied, and in consequence gradually spread over a wide area. An indigenous origin of Late Keltic ornament is therefore by no means an impossibility and cannot be altogether ignored. But what equally cannot be overlooked is that this style of decoration is not peculiar to Britain in the Early Iron Age. It is found on the other side of the Channel at this period as a phase of La Tène culture sometimes termed by French writers *l'art gauloise*. That it is there so distinctive may be open to question, but this may be explained by assuming that whilst Britain received the new style of art from Gaul, it there developed in a manner suitable and agreeable to the genius of the people then inhabiting the British Isles. This being the easier and more obvious explanation is the one generally adopted. It is supported by evidence of communication with Gaul during this period. As instances of this may be recalled the chariot burials of Yorkshire, so essentially similar to those of Marne, confirmed by the existence of Arras as a place name in both districts, the presence of the Parisii tribe in Yorkshire, and the occurrence of coral, the Mediterranean source of which is undoubted. The existence of enamel working on both sides of the Channel at this time supports the same conclusion, the superiority of the British productions being explicable on the assumption that after its introduction into Britain,

it was developed there by the skill and taste of the British craftsman. The similarity of the La Tène fibulæ can only be explained in the same way. Again that class of pottery associated with the Aylesford urn-field was evidently introduced from Belgic Gaul, probably as the result of an invasion from that region.

If then the Late Keltic art of Britain owed its origin to Gaul, and any distinctive character or superiority it may evince was due to a development in keeping with the genius of the Ancient Britons, further inquiry regarding the origin of Late Keltic ornament resolves itself into an attempt to discover its source in Gaul itself. We are in fact merely carried a step backwards, and are faced with exactly the same question as that with which we started, for the Bronze Age ornamentation of metal and pottery in Gaul was equally geometrical and very largely rectilinear, the spiral again being absent save on a few objects, probably importations. This being the case *l'art gauloise* must have originated either indigenously, or from some neighbouring or distant source. Here undoubtedly there is evidence suggesting external influence. The Early Iron Age culture of Hallstatt is evident in France, more especially in the middle east, though it is less rich in ornament than at Hallstatt itself where the spiral disk fibula is common and simple curvilinear designs occasionally occur. But although Hallstatt culture may have supplied an artistic impulse it is alone quite insufficient to explain the appearance of Late Keltic decoration. There must have been other forces at work to produce a style so different from that of Hallstatt where rectilinear designs largely predominated. In the chariot burials of Marne were found (as previously mentioned) Greek pottery and bronze vessels of the fifth or fourth century B.C., and similar evidence comes from the Rhine valley (as at Waldalge-

sheim), elsewhere in Germany, and from Switzerland (as at Grächwyl near Bern). In the modification of the Greek palmette thus introduced we see a possible source from which the Late Keltic scroll designs could be derived. In fact there is some evidence pointing to such a transformation taking place. In illustration of this may be mentioned the designs on the gold ornaments found at Birkenfeld in the Moselle district;[1] to that on the bronze helmet from an interment at Berru in Marne,[2] and the particularly suggestive S and spiral patterns in repoussé on a bronze gilt plaque, no doubt of this period, discovered at Auvers, in Seine et Oise.[3] Two of the bronze objects, already noticed, from the urn-field at Aylesford, are also significant in this connexion. The bronze jug is of Greek type, if not of Greek origin, and the curvilinear design below the handle is evidently a degraded copy of the palmette. The bronze bound bucket (Fig. 316) is also clearly a poor copy of a classical model, such as occurs in Etruscan tombs, and the embossed scrolls on its upper part take the place of the palmettes seen on the classical example. Greek influence is also seen in other places in Eastern France. A very striking instance of this was the discovery in a tumulus at Sainte-Colombe, in Côtes d'Or, of an iron tripod supporting a bronze cauldron the edge of which bears griffin heads. This very distinctive object, referred to the later Hallstatt period, is almost an exact copy of one found at Olympia, where spiral designs were not uncommon, and another very similar was among the many articles in the celebrated

[1] *Bonner Jahrbuch*, XXIII., p. 131, Taf. IV and VI.

[2] *Archéol. Celtique et Gauloise*, par A. Bertrand, Plate XI.

[3] *Revue Archéologique*, 1884, p. 314, Plate XII. "La Bossette d'Auvers," par G. Bapst.

Etruscan tomb of Regulini Galassi at Cervetri.[1] There was evidently therefore considerable communication, direct or indirect, between Greece and these regions from the sixth century downwards.

The cordoned pedestalled pottery of Aylesford has been traced back, as we have seen, through North-east Gaul to Venetia and Illyria. The spread of Keltic tribes into Northern Italy, and eastwards into the Danubian region and beyond, brought them in contact with the civilization of Italy, with the Early Iron Age culture of Illyria, and possibly with the last remnants of the Bronze Age of Hungary. Their extension as far as the Black Sea may have made them acquainted with Scythio-Greek art, and thus with the working of enamel. It would therefore appear that we may look to Greece, Northern Italy, the Balkans and beyond, for the sources of Late Keltic ornament. In this view the Late Keltic Bronze mirrors found in Britain claim attention, for the only objects with which it is possible to associate them, with their characteristic ornamentation, are mirrors from Etruscan tombs, the accessory engraved decoration of which shows some affinity with Late Keltic designs. With them may be joined a bronze horned helmet from the Thames at Waterloo Bridge, for whilst its ornamentation of scroll work and enamel bespeaks its Late Keltic origin, its peculiar shape connects it with the horned helmets of Central Italy, and also the running leaf stem pattern of some late British enamels which is identical with that so often seen on Etruscan objects. When the Gauls overran Northern Italy at the beginning of the fourth century B.C., they were brought into intimate contact with the

[1] Compare Furtwängler's *Die Bronzen Funde von Olympia*, Atlas, Taf. XLIX, Fig. C; *L'Art Etrusque*, par J. Martha, Fig. 99; and Déchelette's *Manuel d'Archéologie*, II., Fig. 221.

Etruscans, and their art in which spiral and curvilinear designs and modifications of the palmette appear on bronze, terra-cotta, stone, and jewellery. In view of these facts it is difficult to ignore the influence of Etruscan art on the formation of Late Keltic designs, and considering its intimate connexion with Greek art, its importance as an intermediary of the latter. In fact the opinion might be ventured that a study of Etruscan ornamental designs shows them to have a closer resemblance to those of Late Keltic art than any others with which we are acquainted.

It has been contended by Montelius that Etruscan civilization was a continuation of the Mycenæan, the art of which, as we have seen, revelled in spiral ornament.[1] Others see a late survival of Mycenæan culture in the Illyrian region, where the spiral survived, as at Glasinatz. And Sir A. J. Evans has pointed out the similarities of some of the Hallstatt art forms to those characterizing the remarkable Gold Treasure found at Aegina, the ornamentation of which distinctly points to its being Late Mycenæan.[2] If it were possible to accept these views there might be some ground for the attractive theory that the most beautiful ornamentation of the Early Iron Age was the descendant of that which in distant regions most strikingly adorned the Age of Bronze, the Mycenæan.

The conclusion however to which we are drawn, in the light of our present knowledge, is, that whilst it is impossible to give a complete answer to the question we are considering, we shall probably not be far wrong in the

[1] "The Tyrrhenians in Italy," *Jo. Anthrop. Inst.*, XXVI., p. 254.

[2] Rhind Lecture, *Scotsman*, 12 December, 1895. Sir A. J. Evans has given a detailed description of the Aegina Treasure in *Jo. Hell. Studies*, XIII., p. 195. The specimens are now in Gold Collection of the British Museum.

opinion that Late Keltic ornament owed its origin to several influences (still to be clearly defined) from the East and South, which the Keltic genius absorbed and transformed into a style of its own, of characteristic individuality and beauty, the highest expression of which is seen in the British Isles.

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